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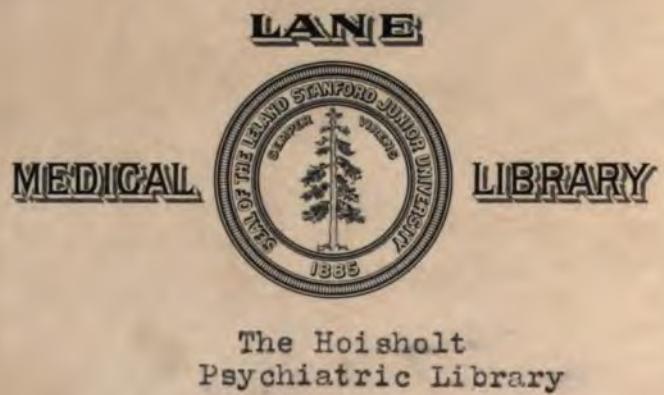
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A CLINICAL MANUAL OF MENTAL DISEASES

LARGE ILLUSTRATED

BY

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SECOND EDITION, REVISED

PHILADELPHIA AND LONDON

W. B. SAUNDERS COMPANY

1917

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November, 1917

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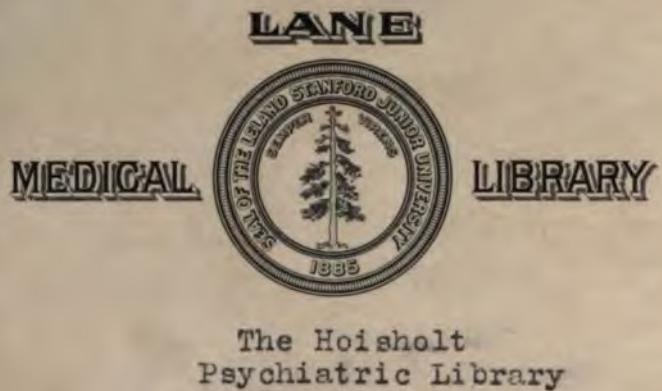
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PREFACE TO THE SECOND EDITION

THE generous reception accorded the first edition of this manual justifies the inference that a purely clinical presentation of mental disease fulfils a distinct want. The practising physician has too often looked upon insanity as a subject unattractive and obscure, difficult and abstruse, and with which, because of the speculative and metaphysical character of its theories and explanations, he has no immediate concern. The truth is, however, that when viewed from the standpoint of internal medicine it is brought into close and intimate relations with the latter. This becomes especially evident when we realize that many cases of mental disease have their origin in infections and intoxications, while others present problems which are essentially those of disorders of metabolism. Many of the latter have to do with profound nutritional disturbances which have their origin in defensive reactions of the organism to intoxications. Such intoxications may arise from without or, it may be, from within the organism. Among the latter are toxic states due to abnormalities of the various glands of internal secretion or of other structures. In other cases of mental disease, again, the physician has to do with aberrancies and arrests of development, with peculiarities of structure and mental organization often hereditary; and in each of these there are, again, the added and largely unsolved problems of toxic metabolism. Finally, in given instances, the mental symptoms are in relation with gross visceral or bodily disease. In short, the more we study insanity, the more we become









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A CLINICAL MANUAL
OF
MENTAL DISEASES

PART I

CHAPTER I

INTRODUCTION. DEFINITIONS

THE position of insanity, both as regards the community and the profession of medicine, has always been somewhat peculiar. Long unrecognized as dealing with diseased states, it was looked upon as something apart from medicine, and up to quite recent times it was the subject of religious and superstitious interpretation. All ancient peoples—the Egyptians, the Hebrews, the early Greeks—looked upon the insane as persons possessed of evil spirits, as the victims of demoniac possession, or, more rarely, as the inspired instruments of the Deity. These crude and fearsome explanations were singularly like those of the barbarous peoples of our own day. In the rise of the Greek, the Alexandrian, and the Roman civilizations, superstition gradually lost ground and various scientific explanations were adopted. The insane were looked upon as persons who were ill, and they were frequently treated by drugs, baths, exercise, and other hygienic measures. However, beginning with about the second or third centuries of the Christian era, a great retrogression took place. Theories of

demonic possession, of sorcery, and witchcraft again held sway, and the insane were subjected to neglect, cruelty, and torture. This attitude of superstition continued throughout the Middle Ages, and, indeed, until long after the dawn of the Renaissance. It was not until the eighteenth century that any marked advance was made. The insane were still confined in dungeons, badly fed, clothed in rags, and weighted down with chains. Various places for the custody and care of the insane were, however, gradually established; for instance, in Rome, in Bethlehem, England, in Ghent and Gheel in Belgium, and in the Hotel Dieu in Paris; but no real provision was made for their humane care until the latter part of the eighteenth century, when Pinel, in France, Tuke, in England, and Benjamin Rush, in America, made the first real advances. In 1793 Philip Pinel was appointed physician to the Bicêtre, and substituted a system of non-restraint and humane treatment for blows and punishments. At the same time that Pinel was making these great strides in France, William Tuke, a member of the Society of Friends, who was not even a physician, began similar reforms in England. He established a retreat or asylum at York, which was opened in 1796, and in which a rational care and humanity were likewise the guiding principles. Subsequently these methods, though slowly, were adopted elsewhere.

Scientific conceptions as to the nature of insanity were likewise very slow in developing. The essentially sinful character of insanity, advocated by Stahl in the early eighteenth century, still found its advocate in the person of Heinroth in the early nineteenth. Little by little, however, metaphysic and psychologic explanations began to take the place of religious theories. The latter were finally definitely abandoned, and physicians began to reason about insanity in a philosophic, though purely speculative way; science had not yet made possible the framing of views based upon fact. Physicians were

slow to realize the essential truth that the insane man is, in reality, a sick man, and that his symptoms must be studied just as we study those of other forms of disease. Insanity, of course, implies disease, organic or functional, just as do other abnormal manifestations. Further, this disease is of the material organism, either of the organism as a whole or of some special structure. It may be the direct outcome of some general affection, of a disease of the brain or of a disease of other viscera.

The symptoms of insanity are always those of disturbed cerebral action. They may be, indeed, most frequently are, attended by few or no demonstrable changes in the brain, its membranes, or its vessels, and it is not surprising that this should be so. Insanity is at times purely symptomatic of bodily or visceral disease, and the mental symptoms may be those merely of exhaustion or may result from the action of poisons circulating in the blood. In either case, the changes in the nerve tissue are probably both slight and evanescent. That the nervous system can be profoundly influenced by poisons which leave no changes in their wake is shown by the action of various drugs, narcotics, and stimulants, which modify nervous function and yet cause no change in nerve cell or fiber that can be demonstrated under the microscope. Similarly, the mental symptoms caused by uremia, by thyroid intoxication, or by the toxins of infection, apparently produce changes so slight as to be beyond our present ability to recognize them, or so slight as to be effaced by the act of death itself. That dendrites, collaterals, and the cell body should respond to the action of toxins, and that various disturbances of association, of sensation, of the elimination of impulses, of the flow of ideas, in short, of any or all of the manifold functions of the brain should ensue, can readily be conceived. That this is not all a matter of speculation is shown by what is known of the action of such poisons as alcohol. Berkley,

Andriezen, and others have demonstrated changes both in the cell body and the cell processes which result from the ingestion of large amounts of alcohol; it would appear that dendrites and collaterals are actually destroyed or corroded by the poison. It would seem as though other poisons likewise act upon these delicate structures—the minute threads of protoplasm represented by the collaterals, the dendrites, and the neuro-fibrils—but that in most cases the action is less destructive and induces merely changes of function rather than changes of structure.

In a small number of cases of mental disease, gross or microscopic lesions are present, such as changes in the nerve tissue, disease of the blood-vessels, of the membranes, chronic inflammatory changes, softening, abscesses, and tumors.

In other patients unusual morphologic factors are noted. These may pertain to the skull, to various features, such as the ears, palate, and teeth, to the limbs, or to the body. These morphologic peculiarities are surface indications of profound departures from normal growth and development of the organism as a whole. Most frequently they are evidences of arrest, but at other times of pathologic deviations. How significant these facts are will become more apparent as we proceed in our studies.

The wide scope of the subject and the relation which insanity bears to other states precludes a simple and formal definition. This becomes evident as soon as a definition is attempted. In general terms, insanity consists of abnormal mental action, and yet a brief consideration convinces us that this definition is too broad; it includes much more than is ordinarily understood by insanity. Thus, it includes the delirium accompanying an attack of measles; it includes the various forms of acute intoxication, for example, by alcohol, morphin, chloral, etc.; it includes the disorders of sleep, dreams, trance, and somnambulism; and

these various manifestations of disturbed cerebral action can certainly not be classified among the insanities. To the medical mind a formal definition of insanity is neither necessary nor possible. However, a definition is sometimes exacted on the witness stand. Under these circumstances, insanity may be defined as a *diseased state in which there is a more or less persistent departure from the normal manner of thinking, acting, and feeling.* If occasion demands, it is well to add that ordinary febrile delirium, intoxication, and sleep disturbances are not included.

The term "alienation" is often used in the same sense as insanity. However, it embraces, besides insanity, also idiocy and imbecility, which are not, properly speaking, insanities. Idiocy and imbecility are *quantitative* defects; they imply an original deficiency of mind, while insanity is essentially a *qualitative* affection.

Idiocy and imbecility are related conditions. In idiocy the mental deficiency is the result either of disease or arrested development previous to, at the time of, or within a very few years following birth. Imbecility deals with a mental deficiency which is less pronounced in degree, is not evident at birth or shortly after birth, and only becomes apparent as the child grows older or as it approaches puberty or adult life. The law takes cognizance of these facts, and has defined an idiot as "one who is born without mind," and an imbecile as "an adult with the mind of a child." Both of these definitions are, of course, excessive, but they nevertheless embody the truth. The idiot is one in whom the mental loss is congenital or nearly so. The imbecile is one in whom the symptoms of mental arrest make their appearance later.

In order to discuss intelligently the symptoms presented by the insane, it is necessary that we should have clear conceptions of some of the terms by which these symptoms are designated.

Fortunately their number is not large and they are not difficult of comprehension. Many patients present what are termed "hallucinations." A *hallucination* is roughly defined as a *sensation without an object*. It is perhaps best explained by a few illustrations. A patient hears a bell ringing, when, in fact, no bell is ringing, and no other sound vibrations have been present which could give rise to the same or similar sensations; or the patient believes that he sees some object—*e.g.*, an animal, a human figure—when no such object is present. In other words, a hallucination is a sensation which arises spontaneously in the mind without there being any object in the external world to excite that sensation. Hallucinations may affect any of the senses. Thus, we may have auditory and visual hallucinations, hallucinations of taste and smell, hallucinations of touch, or there may be various somatic hallucinations, that is, obscure sensations referred to various parts of the body or to various viscera.

Some patients present what are termed "illusions." An *illusion* is a *perception which is misinterpreted*. Thus, the patient sees an object, for instance, a chair, and mistakes it for some other object, it may be an animal; or, he hears the ticking of a clock, and mistakes the sounds for articulate words or sentences. He mistakes a curtain cord for a snake, or a rug upon the floor for a wild beast. Contrary to hallucinations, in an illusion an object is really present in the external world and an impression is really made upon the senses, but the object is incorrectly interpreted. A mistake in perception may, of course, be due to a defect or peculiarity of a sensory organ, such as the eye, but such a mistake does not constitute an illusion in the sense which here concerns us. In an illusion, as the term is here employed, the object perceived is not properly apprehended and the impression is not properly correlated with previous impressions or experiences. Further, an illusion may, and

frequently does, excite or become associated with other sensations, or it may evoke thoughts and feelings not normally excited by the object in question. Illusions and hallucinations, it should be added, both play an important rôle in the symptomatology of insanity. They are common symptoms in a large number of diseases.

Patients also present what are termed "delusions." A *delusion* may be roughly defined as a *false belief*, but it is seen at once that such a definition, without qualification, embraces far more than is intended. Persons holding opposite religious views could reasonably accuse each other of holding false beliefs, but not of possessing insane delusions. This is also true of other beliefs, political and scientific, which men may hold. It becomes necessary, therefore, to qualify this definition, and this we may do as follows: *An insane delusion is a false belief concerning which the patient is unable to accept evidence, such as is accepted by ordinary men or by normal minds.* It is the inability to accept the proffered evidence which gives rise to the delusion. Thus, a patient who believes that he no longer has a mouth, and, in spite of all demonstrations to the contrary, persists in his belief, is possessed of a delusion. A man who believes that all his bones are broken or that he is possessed of the strength to move mountains, and who is incapable of accepting the proof offered that he is in error, is, of course, the victim of delusions. It is this inability to accept evidence which is so striking a factor in the delusion of the unpardonable sin in melancholia, in the delusion of persecution in paranoia, in the delusions of grandeur in paresis.

Delusions are variously spoken of as systematized and unsystematized. A *systematized* delusion is one which has a logical structure, *i. e.*, the various parts of the delusion bear a coherent or logical relation to each other; thus, a man may believe that his neighbors have made holes in the walls of his house and that

through these holes they shout curses or abuses, or he may believe that his neighbors have entered into a conspiracy to injure him; again, he may believe that he is possessed of unusual powers, that he is a person of unusual consequence, and that he is destined to perform great deeds and great missions. As a rule, though not always, systematized delusions do not present much complexity; they are relatively simple, and the various parts of the belief are always in relation with each other. In *unsystematized* delusions the reverse obtains. All evidence of a logical structure is wanting. Unsystematized delusions are seen typically in delirium and confusion; here delusions which are fragmentary, fleeting, and unrelated crowd into the patient's mind. At no time is a coherent relation apparent.

Delusions are also spoken of as expansive or depressive. An expansive delusion is one which embodies the idea of grandeur, beauty, perfection, power, wealth, or other quality of excellence or greatness in the patient. Thus, a man believes that he is Napoleon; that all people are subject to his will; that he owns all the ships upon the sea; that he is about to marry the queen; that he owns billions upon billions; that he has the finest voice that was ever heard; that his strength is super-human; that he is possessed of occult powers or of some other mysterious quality, indicative either of physical or mental greatness.

A depressive delusion, on the other hand, is one which embodies the idea of belittlement, of unworthiness, of persecution, of physical or mental wretchedness, of poverty, or of other qualities indicative of suffering. Depressive delusions may be of two kinds. They may relate, first, to the spiritual side of man, and may embody ideas of moral unworthiness and self-accusation, and may, under certain circumstances, give rise to the delusion of the "unpardonable sin." Again, they may deal merely with the body; that is, the patient may believe that he

is ill, that his body is diseased, that he no longer has a mouth, that he has a snake in his stomach, that his viscera have been removed, or that he has some hopeless physical ailment. Such delusions may be spoken of as somatic or as hypochondriac. Very frequently spiritual and somatic delusions exist in the same patient, and often it is not possible to separate them, ideas of spiritual unworthiness and bodily disease being intermingled. We should remember, also, that depressive delusions may relate neither to the spiritual nor physical makeup of the patient, but may assume the form of delusions of persecution.

Two terms which are frequently used in speaking of the insane require a moment's attention. They are *neurasthenic* and *neuropathic*. The word "neurasthenia" literally means without nervous strength, and a neurasthenic patient is one presenting a group of symptoms indicative of exhaustion and chronic fatigue. Neurasthenia deals essentially with functional conditions.

The word "neuropathic," on the other hand, is applied to those fundamental deficiencies and aberrations of the nervous system which predispose it to disease, or which of themselves entail disease and degeneration. Neuropathy has its origin in basic morphologic and functional deviations and weaknesses, and, as might be supposed, it is largely hereditary and plays an important rôle in mental disease. The changes present in neuropathic states, as a rule, embrace the organism as a whole. Some peculiarity of structure, which has its origin in aberrant and defective development, in the ductless glands, in vascular supply, or in some other unknown quality which favors degeneration of the nervous system, is transmitted from parent to child, and it is this tendency to degeneration which is termed neuropathic.

Other terms used in the description of mental symptoms will be considered and defined as occasion arises.

CHAPTER II

CLASSIFICATION

PATHOLOGY has as yet so little to offer that we must content ourselves with a purely clinical interpretation of insanity. A clinical interpretation is not only of practical value, but it is also interesting and scientific. The clinical interpretation of a disease means literally its bedside interpretation, and into such an interpretation there enters every fact at our disposal, near or remote—not only the symptoms presented by the patient, not only his family history and his personal history, not only his sex, his age, or epoch of life, but all that we know of the changes in the tissues, and of the course, the duration, and the prognosis of the disease in similar cases. In attempting a classification of insanity from the clinical standpoint, therefore, we are guided not by a single series of facts such as are presented by etiology, or by symptoms, or by the scanty facts of pathology, but by all of these and others combined. It presupposes that we approach the subject from all possible points of view, that we weigh all facts, no matter in which category they are found, that we explore all of the converging avenues of truth—in short, that we take into account everything that enters into the natural history of the disease we are about to study. Such a method is not only philosophic and scientific, but is necessitated by the condition of our knowledge of the subject, and it gives rise to clear and logical conceptions in a field where confusion and uncertainty too often prevail.

I have long come to the conclusion that insanity must, as far as possible, be approached from the standpoint of practical medicine. Indeed, it has seemed to me most natural to begin the study of mental disorders with the affections with which the general practitioner first comes in contact. For instance, no graduate of medicine practices long before he comes in contact with such an elementary phenomenon as delirium. A child has an attack of fever, and the physician observes that it is confused, that it does not recognize its surroundings, that it cries out, that it shrinks, struggles, acts as though it heard strange sounds and saw strange objects. At the same time, its restlessness, its cries, its broken and hurried words indicate that the cerebral activity, though perverted, is abnormally aroused. This picture, so familiar, is the picture of simple delirium. There are present illusions, hallucinations, confusion and hurry of thought, fleeting and fragmentary delusions, incoherence. We soon find that these elements are present in every form of delirium, no matter what its origin, and our first logical conclusion is that in these essential particulars all of the deliria are alike. It is perfectly true that some of the deliria present special features dependent upon their causation, as in alcoholic delirium in which visual hallucinations predominate, and yet the fundamental symptoms are always the same. This is the case whether the delirium occurs in a young or an old person, whether it be mild or whether it be severe.

Delirium is essentially an acute mental confusion of relatively short duration—a few hours, a few days, or, at most, a week or two. Naturally, the morbid state which is most closely allied to delirium is one in which confusion is less active but more prolonged. Such a state is found in the prolonged confusion which every now and then comes on in infectious diseases after fever has subsided. It is seen typically in the con-

fusional insanity following typhoid fever, influenza, erysipelas, acute articular rheumatism, the puerperium, profound exhaustion, trauma, surgical shock, etc. Into its causation, there enter especially two factors: first, the toxins of infection or other poisons, and, second, profound and persistent exhaustion. Its symptoms do not differ in any essential particulars from those of delirium, save that they are less acute and the course of the disease far more prolonged. In confusional insanity—the amentia of Meynert, the Verwirrtheit of other German writers—there is the same presence of hallucinations and delusions, the same marked confusion and incoherence, but cerebral activity is never roused to the same high pitch, and, while delirium lasts from a few hours to a few days or more, confusion may last many months. The various forms of confusion are closely allied to each other, just as are the deliria, and no sharp distinctions can be drawn between them. However, special forms may bear the impress of their causation. Thus, a confusional insanity following typhoid fever presents a somewhat different clinical picture from the confusional insanity of alcohol- or lead-poisoning, and yet in all essential particulars they are the same.

Every now and then we meet with cases in which an infection, poisoning, or profoundly debilitating cause is followed by mental confusion, but in which the confusion is accompanied with very marked dulness and hebetude, and in which, little by little, mental obtusion becomes more and more pronounced, until finally the faculties are completely in abeyance. Such a case forms one of stupor or so-called stuporous insanity or acute dementia. Simple stupor, as is well known, does not make its appearance suddenly. Generally there is a prodromal period of several days or weeks during which the patient suffers from more or less marked mental confusion, attended, it may be,

with excitement or with depression. As in the beginning of confusional insanity, the patient at first suffers from insomnia, is worried and afraid, and is unable to think clearly. Soon confusion makes its appearance. There is loss of the proper appreciation of the surroundings. As in ordinary confusion, the patient believes himself to be in a strange place and does not properly recognize the persons about him. He is also distinctly hallucinatory, and up to this point the case resembles one of confusional insanity without much excitement. Little by little mental obtuseness, noticed in the beginning, becomes more and more marked, and soon the loss of the power to appreciate the surroundings becomes so profound that the patient lies motionless in bed, oblivious to everything about him. There is now no longer confusion, but instead a more or less complete suspension of mental action—stupor.

It would be out of place here to dwell further upon the symptoms of stupor. I wish merely to emphasize the fact that confusion and stupor are closely related clinical forms. It is, indeed, at times impossible to accurately characterize a given case. In the first place, stupor may occur as an episode of confusional insanity; and, secondly, cases are met with which occupy such an intermediate position that we are obliged to term them cases of confusion with stupor or stuporous confusion. What is true of the interrelation of confusion and stupor is also true, I need hardly say, of the interrelation of delirium and confusion. Every now and then it happens that a case beginning as a simple delirium merges into one of confusion, and it is also true that during the course of a confusional insanity episodes of more or less active delirium may supervene. Clearly, delirium, confusion and stupor are closely related clinical forms, and they may be considered as constituting a group of mental affections by themselves, separate and distinct, as we will see, from other

mental disorders. I will not here deal with the causes of delirium, confusion, or stupor. A sufficient hint is afforded us in the clinical history. We have at once suggested to our minds the action of the bacteria, of bacterial toxins, and of other poisons upon the cortex. It is probable that in delirium we have especially and essentially such an action, while in confusion and stupor we have the added factors of exhaustion and secondary changes in metabolism.

The above considerations show that delirium, confusion, and stupor are closely related forms, and we construct of them the first group of our classification of mental diseases. As pointed out, they are more or less characterized by the presence of hallucinations, illusions, unsystematized delusions, incoherence and confusion. As our studies progress we will learn, in addition, two important facts: first, that the emotional state, though it may be disturbed, plays only a secondary rôle; and secondly, that heredity is, in this group, of subsidiary importance.

In these respects, delirium, confusion, and stupor differ radically from the next group of mental diseases to be considered; namely, melancholia, mania, and circular insanity. Here the emotional state dominates the entire clinical picture and outweighs all other symptoms. Secondly, the affection, whether it be mania or melancholia, pursues a wave-like course. Heredity also plays a most important rôle; it is a striking factor in the clinical history of the great majority of cases. Further, as we study these affections, we will recognize that they are closely related to each other. In melancholia the patient passes through a phase of emotional depression; in mania, through a phase of emotional exaltation, and in circular insanity, through both of these phases, one after the other. The symptom group of melancholia-mania differs, of course, radically from that of delirium, confusion, and stupor. We have, for example, in the phase of mania, as we will

learn farther on, an expansive emotional state, an increased rapidity in the elimination of ideas, an abnormal increase of association, an absence of hallucinations, fleeting, expansive delusions; in melancholia, emotional depression, psychic inhibition, depressive delusions. The members of this group are characterized, let us repeat, by a dominant emotional state and by a wave-like course. In our scheme of classification they constitute the second group. Following the lead of Kraepelin, we may speak of them collectively as manic-depressive insanity. Further, in this group, the tendency is to recovery from individual attacks, but the disease tends to repeat itself in recurring waves.

In still another group of mental diseases we have to deal with affections that are essentially degenerative in their nature. The individuals who suffer from them are essentially defective in their make-up, physical and mental. As a rule, they present no symptoms which attract attention until some time after puberty has been passed or until youth or adult age is reached. The individual appears to be able to adapt himself to the strains of life in greater or less degree until a certain period of his career, when, by reason of his defective organization, he breaks down. Among the younger patients this gives rise to the various forms of juvenile insanity; among the older, to various forms of delusional lunacy. Following Kraepelin, it has been the custom to group the juvenile insanities under the general term of "dementia præcox," while the delusional lunacies are conveniently embraced under the term "paranoia." The juvenile insanities and the delusional lunacies form a natural group, and may be classed together under the general term "the heboid-paranoid group."

Melancholia-mania and the heboid-paranoid group are affections which are essentially neuropathic in their nature. Allied to them we have still another group, also neuropathic,

which is made up of mental disorders in which neurasthenia and neuropathy together play the essential roles. There is here neither a wave-like course, as in manic-depressive insanity, nor a downward or degenerative course, as in the heboid-paranoid forms, but merely a symptom group characterized chiefly by weakness and defective inhibition. These disorders may manifest themselves in the form of abnormal fears, of chronic indecision, of deficient control of impulses, or of deficient will. To this group the term "neurasthenic insanities" was long ago applied by French writers. The term "neurasthenic-neuropathic" is more expressive, though perhaps a little awkward. Of late years, following Janet, it has been the custom to employ the term "psychasthenia," which the writer, however, regards as open to objection, inasmuch as the expression "soul weakness" can hardly be regarded as conveying a definite conception. (See Chapter VI.)

In order to make the clinical view of insanity complete, it is necessary to add still a fifth group, namely, insanities resulting from simple mental loss, *i. e.*, dementia. Dementia may exist as a simple and uncomplicated condition, and is frequently seen in its pure and typical form in old age.

The five groups of mental affections above enumerated are fundamental and are necessary to a comprehensive interpretation. They are as follows:

- I. Delirium, Confusion, Stupor.
- II. Melancholia, Mania, Circular Insanity (Melancholia-mania, Manic-depressive insanity).
- III. The Heboid-paranoid Group (Dementia Praecox, Paranoia).
- IV. The Neurasthenic-neuropathic Disorders (Psychasthenia.)
- V. The Dementias.

In the course of our studies we will next consider insanity from the point of view of internal medicine; this is practically of great importance. We will consider the relation which insanity bears to the various infectious diseases, to the intoxications, to the disorders of metabolism, to the various diseases of the viscera, to the diseases of the nervous system, and, lastly, to pregnancy, the puerperium, and lactation.

We will further study the subject as related to the various epochs of life, namely, to infancy, puberty, early adult age, mature adult age, middle age, and old age.

Finally, we will consider briefly certain mental diseases not usually included under insanity, and also insanity by contagion.

CHAPTER III

GROUP I—DELIRIUM, CONFUSION, STUPOR

DELIRIUM, the first member of this interesting group, occurs as a very common epiphomenon of fevers, infection, intoxication and exhaustion. It is, therefore, a condition which frequently falls under the observation of the practitioner. Once comprehended, it explains much that is met with in the allied states of confusion and stupor. We have already enumerated its principal features in the preceding chapter on Classification (see p. 27). These were illusions, hallucinations, and unsystematized delusions. To these must be added exaggerated cerebral activity and physical restlessness. Further, delirium is always of short or relatively short duration. If asked to define "delirium," we may say that it is an active mental disturbance, characterized by the presence of illusions, hallucinations, fragmentary, fleeting, unsystematized delusions, incoherence, cerebral excitement, physical restlessness, and by a relatively short course.

All deliria are essentially alike, though they differ somewhat in their details. They naturally separate themselves into two groups, the febrile and the afebrile forms. The febrile deliria are those which accompany the various acute infections, the exanthemata, and the various acute visceral diseases, such as pneumonia. The afebrile deliria are those which are met with as sequelæ of various infectious diseases, as a result of various intoxications, and after trauma or shock. The afebrile deliria may have their onset during the period of convalescence—the

postfebrile period—of one of the exanthemata, for example, typhoid fever. Again, they may make their appearance in cases of poisoning; for instance, from alcohol or lead.

Under the head of the febrile deliria, we must include a delirium that has been described as a special form, and is variously known as delirium grave, acute delirious mania, acute delirium, typhomania, and Bell's delirium. It appears to be a special clinical entity, and may with propriety be spoken of as "specific febrile delirium." To its consideration we will presently return.

The classification which a consideration of the deliria suggests is, therefore, the following:

- a*, Febrile Delirium.
 - 1, Simple Febrile Delirium.
 - 2, Specific Febrile Delirium.
- b*, Afebrile Delirium.

SIMPLE FEBRILE DELIRIUM

Etiology.—Simple febrile delirium is always accompanied—in addition to the elevation of temperature—by physical signs, such as an eruption or other evidences of the exanthemata, by visceral changes, such as are found in pneumonia or by other indications of infection. It is accordingly met with in typhoid fever, scarlet fever, measles, small-pox, erysipelas, influenza, pneumonia, acute articular rheumatism, tuberculosis, septicemia, pyemia, and various inflammations, local and visceral. It is probable that in these affections the delirium is directly due to the action of toxins upon the cortical neurones. It is well known that poisons introduced from without may produce delirium, and it is a rational hypothesis to ascribe like properties to the poisons resulting from infection. The elevation of temperature and the circulatory and respiratory disturbances accompa-

nying the infections may also play a rôle as causal factors, though this rôle must be subsidiary in character; it is well known that active delirium may exist without fever and also without circulatory and respiratory disorders of moment. It is, of course, a matter of common experience that the intensity of a febrile delirium varies largely with the intensity of the fever, being greater when the temperature is highest, and becoming milder when the temperature falls; but this is probably because the higher temperatures are consonant with higher activities of the infectious processes. The toxins probably act first upon the finer collaterals and dendrites, and later perhaps upon the cell bodies, exciting, inhibiting, and otherwise perverting the functions of these various structures.

To this explanation must be added another factor. It is well known that the occurrence of delirium varies greatly in different individuals. Severe infection and high temperature are repeatedly encountered without delirium of moment, while mild febrile attacks are occasionally accompanied by delirium disproportionate in intensity and degree. In other words, certain patients become delirious under slight provocation, and there must be in them a feebleness of resistance, a proneness to mental disturbance not observed in normal persons. This feebleness of resistance is most frequently associated with a neuropathic family history, sometimes with a personal history of frequent illnesses with delayed convalescence, or with other factors indicating weakness, either hereditary or acquired. Any causes that weaken the stock, such as tuberculosis and alcoholism in the ancestry, or such as lessen the individual powers of resistance, especially the abuse of poisons, notably alcohol, act as predisposing factors. The reader must not, however, infer from these statements that the occurrence of febrile delirium is indicative of a neuropathy;

indeed, neuropathic factors are found in only a percentage of cases. Persons otherwise entirely healthy may, it is unnecessary to add, become delirious under the influence of febrile infections, and it is only in cases in which an unduly severe or intense delirium attends a mild infection that neuropathic factors are indicated.

Symptoms and Course.—The symptoms of the febrile deliria are, of course, the same as those of delirium in general. Individual attacks differ greatly in degree, due partly to the character and intensity of the infection and partly to peculiarities of the individual. At times, the attack is so slight that the patient appears merely to be wandering or half-dreaming, and can be readily recalled to himself. Most frequently it is more marked, and at times it may be extreme, the patient becoming noisy, violent, and even at times destructive. The onset may be preceded by restlessness; sleep is disturbed; the patient is dull; he does not comprehend easily, nor can his attention be readily held. Very soon excitement makes its appearance and may increase, usually with the rise of the temperature and the development of the other symptoms of the infection. Illusions make their appearance. The patient mistakes the objects in his room, the figures upon the wall-paper, the persons about him. Instead of the furniture, animals, phantastic forms, and figures are seen. The nurse, the mother, or other relatives, as the case may be, become strangers or strange beings. Sounds are equally misinterpreted; the voices of friends, foot-falls, the opening and shutting of doors, noises in the street, all give rise to illusions, as is more or less evidenced by the patient's manner and the phrases that escape him. Tactile illusions, illusions of taste and smell, appear also to be present; the patient misunderstands the attempts at handling him, and fails to recognize the drink or food that is offered. At first he can be recalled to himself,

and be made to realize that he is ill and to understand what is being done for him; he may still comply with requests and directions. Soon, however, the illusions become more pronounced, and hallucinations and delusive ideas complicate the picture. The patient can no longer be brought to a realization of his surroundings and reacts entirely to his perverted impressions and spontaneous sensations. The hallucinations rapidly become numerous and diversified; soon they play the leading rôle, and the delusions which the patient manifests are correspondingly varied, changeable, and fleeting. Quite commonly the delusions are frightening, painful, distressing. Houses are on fire, people are being killed, children are being tortured, battles are being fought, the patient is compelled to fight for his life; dismembered bodies and other frightful visions terrify him. Every now and then a lull is observed in the violence of the symptoms, or the patient, instead of being frightened, betrays by smiles and gestures, by expressions of pleasure or rapture, that he is in a stage of exaltation, a stage which proves, however, to be very short-lived, for soon the painful and terrifying hallucinations and delusions again assert themselves.

The intensity of the delirium depends both upon the severity of the infection and upon the feebleness or strength of resistance of the patient, and in estimating the significance of delirium in a given case both these factors must be borne in mind. Further, it is a more decided complication in some affections than in others; thus, it is commonly more pronounced in typhoid fever than in any other of the exanthemata.

As already indicated, the delirium becomes more marked with the rise of the temperature and the advance of the infection; soon, however, it ceases to keep pace with the latter, the excitement lessens, the violence of the symptoms abates, the

patient becomes clear or relatively so; or a muttering delirium, the restlessness of which expresses itself by a tugging or picking at the bed-clothes, becomes established. In severe cases, the patient may pass into a condition of coma or stupor. Usually all traces of delirium disappear when the infection has spent its force, the patient's mind becoming entirely normal. Rarely, however, some degree of mental weakness persists for a time; sometimes for months or even for years.

Diagnosis.—The diagnosis of a febrile delirium is, of course, readily made; indeed, more readily sometimes than the diagnosis of the disease of which it is an accompaniment.

Prognosis.—A febrile delirium is quite commonly a negligible factor. Only when it is unusually severe does it acquire significance. It may then indicate a very grave infection or, what is equally ominous, feebleness of resistance on the part of the patient. As far as the mind of the patient is concerned, the prognosis is quite favorable, save in a very small percentage of cases, in which, as already stated, mental weakness may for a time persist.

SPECIFIC FEBRILE DELIRIUM

The affection, which I have myself termed "specific febrile delirium," is known by a number of synonyms, all, I believe, more or less open to objection; thus, it is spoken of as "acute delirium" a term which is not definitive, because all deliria are acute; secondly, it is spoken of as "acute delirious mania," although it is in no sense a mania; the same objection applies to the older term "typhomania." The names "Bell's delirium" and "delirium grave" are somewhat less objectionable, though they both lack a distinctive signification. The term "specific febrile delirium" seems to me to be especially applicable. The affection is distinguished from ordinary febrile delirium by the fact that there are never present any

physical signs, merely a high temperature, together with an intense delirium. Specific febrile delirium may be defined as a delirium, very active, characterized by a febrile state, the rise of temperature being generally quite high, while there are not present any surface lesions such as are found in the exanthemata, nor any sign of visceral involvement, such as pneumonia or meningitis.

Etiology.—It is a rare disease, and but little is known regarding its etiology. It appears to be an affection of adult life, occurring most frequently between twenty-five and forty years of age. It would appear also from the statements of several writers that it occurs more frequently in women than in men, though this hardly accords with the experience of the writer. It is said, also, that neuropathic features are frequently presented by both the family and the personal histories of the patient. Other equally vague and unsatisfactory statements are made in regard to the previous existence of exhausting and debilitating affections, grief, depressing emotions, trauma, fatigue, excesses, and bad hygiene. The very number and character of these factors rob them of any specific value; they could only act by diminishing the resistance of the nervous system to toxic or infectious processes, and could not of themselves play any rôle other than that of secondary or predisposing causes.

Symptoms and Course.—The onset of the disease is usually very rapid; often sudden. Sometimes, however, a prodromal period has been noted, varying in duration from several hours to a day or more. During this time there may be present insomnia, irritability, intolerance of light and sounds, headache, tinnitus, anorexia, lassitude, weakness, and perhaps uncertainty of gait. Narrowness of the pupils has also been noted. Soon, usually within twenty-four hours, a delirium makes its

appearance, which rapidly assumes a great intensity. It is furious in character, the patient raves, shouts, sings; his features express in rapid sequence fright, anger, terror, anguish, ecstasy. He struggles, tries to escape or to hide, he weeps, shrieks, or may, for brief intervals, laugh or smile. From his lips issue fragments of sentences, broken phrases, half-articulated words. He is entirely obtunded to his surroundings, he cannot, as in deliria of less violent form, be brought in any degree to a realization of his surroundings. Indeed, even illusions are not formed, and the patient appears to be entirely at the mercy of his hallucinations. The latter are, in the main, painful and terrifying, as are the disordered ideas to which they give rise, and, in this respect, the symptoms resemble those of ordinary febrile delirium, save that they are magnified and accentuated. Paroxysms of terror associated with staring eyes, shrieks, and mad struggling can only depend upon frightful hallucinations; and the phrases the patient utters, often understood with difficulty, are of murder, fire, blood, and tortures. The ideas reveal no sequence other than that of a torrent of disordered and fragmentary delusions, painful in the extreme. Certain ideas may recur, or certain groups of ideas, such as of fire and of being burnt alive, of torture or poisoning, may predominate, but no coherence or systematization obtains.

The patient's restlessness is extreme; in the intervals of his struggles he is in a continual state of agitation, and constantly moving unless restrained. He is picking or pulling with his hands, tearing at his clothes, grasping at the air, pushing away or warding off imaginary dangers. He may spring from his bed, throw himself against the walls, furniture, or attendants. As might be expected, food and drink can rarely be administered; the food may be retained in the mouth for a moment, only to be suddenly ejected; at times a mouthful may

be gulped; more frequently it is impossible to get the patient to take anything. Food is not recognized, and the patient, already having ideas of poisoning or torture, struggles against it. Even when introduced forcibly by the stomach-tube, it may not be retained, due alike to the struggling and to the anorexia which is undoubtedly present.

The temperature of the patient is always elevated; indeed, high fever is a characteristic feature of the disease. The temperature rapidly rises to 102° or 103° F., and ranges for a time in the neighborhood of 104° F. It often attains 105° and even 106° F., and persists, as a rule, until shortly before death, when it may rapidly fall; at times, however, this defer-vescence does not take place, the high temperature persisting until death ensues.

The pulse is rapid and of high tension; it soon becomes small and irregular. It may vary from 120 to 140 per minute; very rarely is it slow. The respirations are also increased in frequency and are sometimes irregular; toward the termination of the attack they may assume a Cheyne-Stokes character. The breath is foul, the tongue becomes heavily coated and the teeth covered with sordes. The bowels at first are obstinately constipated, but later, as exhaustion supervenes, an offensive, colliquative diarrhea sets in. The urine is scanty and high colored. The chlorids are diminished, albumin may be present, and occasionally hyaline casts are found. The saliva appears to be increased; the patient may drool freely. Sweating also may be marked, especially at first, though later the skin becomes dry.

The affection pursues a rapid course. If death does not soon supervene—it may take place as early as the third day—collapse makes its appearance. The delirium becomes low and muttering, and finally gives way to stupor. The temperature

becomes subnormal, the features pale and shrunken, and death ensues from exhaustion. The entire duration of the attack may be six or seven days; rarely does it extend over a longer period, though cases of two and three weeks have been recorded. Convulsive seizures, general or local in character, occasionally complicate the picture.

In the very few cases that recover, the convalescence is tedious and difficult. As in other exhausting affections—*e. g.*, typhoid fever—the hair may fall out; at times the nails are lost; general emaciation is extreme; there is also wasting of muscles; even spontaneous gangrene may supervene.

Pathology.—A postmortem examination may reveal nothing whatever, the brain, its membranes and vessels, being entirely normal to the naked eye. Usually, however, the macroscopic examination reveals a marked hyperemia and injection of the membranes and cortex. The subdural space and the meshes of the pia-arachnoid may contain an excess of cerebrospinal fluid; the vessels of the pia may be full of blood, and here and there marked engorgement or even slight hemorrhagic exudations may be noted. The pia may be stripped off the convolutions with unusual ease, and section of the brain substance may reveal a finely punctate appearance; indeed, it may present a distinct tinge of red. At other times the pia may be slightly opalescent, or there may be evidences of infiltration along its vessels, and, instead of being abnormally loose, it may here and there be adherent.

A microscopic examination may reveal a marked chromatolysis of the cells of the cortex, together with shrinkage, deformity, displacement of the nucleus, enlargement of the nucleus, together with varicosities of the cell processes. Similar changes have been noted in the cells of the cerebellum, the medulla, and cord. The neuroglia may reveal evidences of prolifera-

tion, especially about the vessels; its nuclei may be increased and its network more pronounced.

The changes observed seem to indicate the action of some poison, most probably the toxin of some infection. However, the evidence at hand is as yet extremely meager and unsatisfactory. Bianchi and Piccinino have described a bacillus found in the blood of delirium grave which is not found in other deliria, and which they believe to be specific. However, other observers have noted the presence in the blood of staphylococci, streptococci, and diplococci, to which obviously no specificity could be ascribed. Again, others still, such as Cabitto, have failed in undoubted delirium grave to find any microbic infection whatever.

It is impossible, of course, in the present state of our knowledge to form a definite opinion, or even to determine whether delirium grave is a specific infectious disease. Indeed, it is not impossible that it is a syndrome which may be the outcome of diverse infective agents. However this may be, it must be admitted that delirium grave is a clinical entity; that it presents special features as regards its evolution, its symptoms, its course, and its termination, and as such it demands special study and consideration.

Diagnosis.—The absence of the physical signs of the exanthemata and of the visceral diseases of infectious origin, together with the presence of a delirium of rapid evolution and great intensity, accompanied by high temperature, should suggest at once the existence of specific febrile delirium. In other affections, the history of a period of invasion and the signs present at the time of the evolution of the delirium leave, as a rule, no doubt of the existence of one of the eruptive fevers, erysipelas, pneumonia, meningitis, articular rheumatism, or of pelvic, abdominal, or other local lesions. The clinical picture is always very different; thus, in a meningitis, the delirium is

much less pronounced, restlessness is but little marked, while there are present intense headache, vomiting, convulsions, local or general, palsies, ocular involvement, and the other signs unnecessary to enumerate here. Rarely one of the exanthemata is ushered in by a high temperature and an active delirium, but the subsequent course early solves the problem. Again, every now and then an active delirium occurs as an episode in paresis or, more rarely, as an episode in a case of mania. In such instance, of course, the presence of the physical signs of paresis, and, in mania, the history of the case and absence of high temperature, suffice to make the differential diagnosis. Similarly, a case of alcoholic delirium (*delirium tremens*) might, because of its intensity, suggest specific febrile delirium, especially when accompanied by fever. Here, besides the alcoholic history and the evident coarse signs of alcoholism, we have the tremor of the lips, the tongue and limbs, and, especially, the great predominance of visual hallucinations. In practice no difficulty is experienced in differentiating the various toxic deliria from the specific febrile form. The temperature in the former is rarely pronounced, the delirium is much less active, and the clinical history and symptoms leave little room for doubt.

Prognosis.—As has already been pointed out in the study of the symptoms, the prognosis of specific febrile delirium is grave in the great majority of cases. Death, as a rule, supervenes before the fourth day, though, as already stated, life may be prolonged to the fifth, sixth, seventh day, or, in rare instances, for longer periods. A few cases only survive.

A FEBRILE DELIRIUM

(*Delirium of Exhaustion, Postfebrile Delirium*)

Etiology.—Every now and then it happens during the course of an infectious disease, such as typhoid fever, especially near its termination, that there is a sudden defervescence of tempera-

ture, and that this is either accompanied or followed by an attack of delirium. Again, it may be that the infectious disease from which the patient suffers has pursued and completed a normal course, and that the patient has entered the stage of convalescence, when the latter is interrupted by an attack of delirium. As might be expected, afebrile delirium may occur in widely separate affections. Thus, it may occur during or as a sequel in the various exanthemata, in typhoid fever, in pneumonia, in influenza, and in various other conditions in which sudden exhaustion may supervene; for example, in labor, in the puerperium, sudden hemorrhage, surgical shock, great emotional shock, and fright. There is present in some cases in which such a delirium occurs an undoubted predisposition to mental disturbance—a hereditary neuropathic make-up—but this is probably true of less than half the cases.

Symptoms and Course.—The onset is usually sudden, though at times prodromal symptoms may be noted. Thus, for a day or two insomnia and an ominous restlessness may make their appearance. Consciousness becomes much obscured; the patient loses the proper appreciation of his surroundings; he becomes illusional, everything seems strange and changed; soon, also, he becomes hallucinatory to an extreme degree. The chairs and other objects in the room are mistaken for strange shapes, persons, or animals. The individuals about his bed are no longer properly recognized. The pictures upon the walls, the curtains upon the windows, the rugs upon the floor, all become animated objects. As in other forms of delirium, the hallucinations which manifest themselves are varied and numerous, and, if the attack be severe, may become very pronounced. Voices call to the patient, strange figures beckon to or terrify him. Delusions, fragmentary, painful, and frightful—delusions of torture, fire, poisoning, assassination—crowd in hurried frenzy through his mind. His struggles are those of

fear, and though at times we note a smile, a laugh, or a grimace, indicating a pleasurable or expansive state, such a state is always of brief duration, soon giving way again to signs of fear or terror.

The speech of the patient, as can readily be surmised, is for the most part fragmentary and confused, and his delusive ideas are difficult if not impossible to follow. The patient cries out or utters merely parts of sentences or phrases, or his speech may be entirely incoherent or consist of senseless repetitions or alliterations. He may talk loudly, excitedly, or he may whisper, gesticulate, or make grimaces. It is generally impossible to obtain a rational answer to a question, though sometimes, during a momentary lull, the patient may comply with a given direction. Sleep, unless induced by artificial means, is abolished. Food and medicine are administered with great difficulty. As the delirium progresses, the mind becomes more and more obtunded, the movements become purposeless, the struggling senseless and automatic, the patient turning about the bed, pulling and pushing, or making aimless gestures. The physical condition is indicative of great prostration. The surface of the body is cold, pale, and moist. The pulse is small, sometimes slow, more frequently rapid. Muscular weakness is pronounced. Incontinence, also, is usually present.

Afebrile delirium is an affection of short duration. It may last only a few hours; it never extends over more than a few days. Recovery is manifested by the gradual return of the power to recognize the surroundings. The patient begins to comply with the directions of the nurse, takes his food, and, above all, begins to sleep. Not infrequently the return to lucidity is quite rapid, and, as a rule, the recovery is uninterrupted; but at times it is broken in upon by recurrences of

delirium or confusion, usually transient in character. Along with the other signs of improvement, we observe a gain in the physical condition and a disappearance of the restlessness. During the convalescence, we may note that the patient is emotional, irritable, or excitable. All of these symptoms, though they may persist for several weeks, finally disappear. The patient remembers very little of the attack; indeed, usually nothing of the height of the attack. Such matters as he does remember are usually remembered very imperfectly.

Pathology.—Undoubtedly, two factors play the leading rôle in the production of the afebrile deliria: first, exhaustion, and second, toxemia. The exhaustion lessens the resistance of the nerve-centers to the toxins of the infection—toxins which are probably being imperfectly eliminated or otherwise slowly disposed of, and which are cumulative in their action. Specific changes in the nerve-centers, attributable to the delirium, have not been described; cases very infrequently come to autopsy. It is unlikely, because of the prompt and speedy recovery ensuing in most cases, that changes of moment take place in the nerve tissue.

Diagnosis.—The features upon which the diagnosis is to be based are briefly as follows: First, the history of an antecedent febrile disease, of a shock, of sudden hemorrhage, trauma, or other acutely debilitating cause; second, the rapid appearance of excessive mental confusion with marked excitement and restlessness, abnormal rapidity in the flow of ideas, together with marked obtusion and the obvious presence of illusions, hallucinations, and unsystematized delusions; third, signs of a sudden and acute physical prostration; fourth, the absence of fever.

Afebrile delirium must be differentiated from epileptic delirium, alcoholic delirium, the intercurrent delirium of paresis, and from confusional insanity. Epileptic delirium is to

be differentiated by the history of epileptic seizures, usually obtainable, by the absence of a history of antecedent febrile or other acutely debilitating cause, by the absence of the physical signs of collapse, by the complete loss of consciousness, and by such phenomena as epileptic automatism. Delirium tremens is to be differentiated by the history of alcoholism, by the presence of the physical signs of alcoholism, by the absence of an antecedent history of febrile or other exhausting disease, and especially by the predominance of visual hallucinations. The intercurrent delirium of paresis is to be distinguished by the history of the case and the physical signs of paresis. From confusional insanity, afebrile delirium is to be separated by its stormy development, by the greater intensity and activity of its symptoms, both mental and physical, and by its rapid and short course.

Prognosis.—Other things equal, the prognosis of afebrile delirium is good. The large majority of cases recover. The prognosis is grave only in cases in which the physical condition is precarious. Again, rarely the delirium does not subside completely, and the patient passes into a condition of more or less persistent confusion lasting for a variable period, sometimes for many weeks. Still more rarely the delirium eventuates in a stupor which likewise proves of long duration. In either case, however, the ultimate outcome is one of recovery in the majority of cases.

CONFUSION

Confusion, also spoken of as confusional insanity, as amentia (Meynert), and as Verwirrtheit, presents itself under various clinical forms, all, however, closely related. In its more active and pronounced forms, it resembles and, indeed, approximates delirium. On the other hand, it may be so slightly pronounced,

the symptoms so mild in degree, that only a state of mild mental confusion may be present; indeed, it may be so light as to be represented by merely a slightly dazed state of mind. The less active form of confusion may properly be termed passive, and we at once add clearness to our clinical conceptions by recognizing at the outset the existence of these widely differing forms; namely, *active* confusion and *passive* confusion. Again, in the active form—perhaps as a result of increasing toxicity and exhaustion—the patient may become very dull and heavy and his confusion very deep, so as to suggest stupor. In other words, just as confusion when attended by marked activity and excitement may approximate delirium, so may it, on the other hand, approximate stupor.

However widely the forms of confusion differ from each other, the underlying features are always the same. There is always present some degree of mental obtusion; in consequence, illusions as to objects, surroundings, and persons may be observed. Hallucinations, if present, are markedly so only in the more active forms. Delusions unsystematized in character, or in the passive forms, perhaps feebly systematized, are present in almost all cases; in the forms which approximate stupor they may be absent.

Etiology.—In the etiology of confusion, we have to deal, as in delirium, with the two factors of exhaustion and toxemia. In the more active form, the confusion stands in undoubted relation to the infections, and it not infrequently occurs during the convalescent or postfebrile period of the exanthemata, just as does afebrile delirium. Thus, it may follow typhoid fever, variola, erysipelas, pneumonia, influenza, puerperal infections, acute articular rheumatism, and allied conditions.

At other times, and especially in its less active forms, confu-

sion may stand in close relation to various auto-intoxications. Unfortunately, our knowledge of this subject does not permit of accurate statements. It would appear, however, that the confusion now and then met with in metabolic affections, such as gout and rheumatism, bears a direct relation to the toxemia of these disorders. Equally probable is it that the confusion occasionally observed in diseases of the viscera, for example, of the liver and kidneys, is due to toxins formed in these organs; at other times, to a failure of elimination of substances normally present in the body. There is also reason to believe that, under given conditions, confusion may be the result of a gastro-intestinal intoxication, though, on the whole, such an etiology appears to be infrequent.

Toxic agents introduced from without may also play a rôle. Especially is this the case with alcohol, the various narcotics, and other poisons. Inasmuch as these toxic insanities present special clinical features they are considered separately. (See Part II.) Their discussion here would lead us too far afield.

In considering the etiology of confusion, it becomes evident that many of the causes indicated, especially the infections and the auto-intoxications, only produce confusion in a small proportion of cases. Taking into consideration the large number of cases of various kinds of infection and intoxication observed in the hospitals and in private practice, the proportion of cases of confusion is relatively small. Evidently other causes must be at work, and these appear to be in some cases exhaustion and in others a pre-existing neuropathy, both of which factors diminish the resistance of the nervous system to the action of toxic agents. In about one-half the cases, as in delirium, there is a clear family history of insanity. Indeed, it is not infrequent to meet with an account of cases presenting similar attacks or of cases of manic-depressive or other psychoses in the an-

cestry. Among causes of exhaustion we must recognize such factors as the physical depletion attendant upon the various acute infectious diseases, mental and emotional overstrain, physical overexertion, excessive worry, and prolonged lactation.

Symptoms and Course.—Confusion when active—as already pointed out—approximates delirium, though the excitement is less marked and the affection itself much more prolonged. However, because of its activity it has received such designations as “mania hallucinatoria” (Mendel) and “hallucinatorische Verwirrtheit” (hallucinatory confusion, Meynert), names which convey the notion of its two prominent features—activity of symptoms and the presence of hallucinations. It is to this active form that we will first give our attention.

The onset is less rapid than in delirium. The patient is sleepless and restless, nervous, very much afraid, and excited. He talks of dying, has a fear of some impending evil or disaster, becomes forgetful, is unable to properly collect his thoughts, complains that he cannot think, and, little by little, becomes heavy, dull, and confused. In the course of a few days these symptoms become more pronounced. The patient begins to lose the correct appreciation of his surroundings. He fails to recognize his room, the bed, and other objects, as well as the persons about him. He does not know where he is, and often begs to be taken home. He understands very imperfectly what is said to him. Sometimes he catches a word or phrase, but usually mistakes its meaning. The commonest objects fail to be recognized; a spoon or a thermometer may inspire deadly fear; the prick of a hypodermic needle may be mistaken for an onslaught with a dagger. The consciousness of the patient is more or less obtunded, but sometimes it is possible to attract his attention for a brief period by speaking plainly and repeatedly to him.

Hallucinations also make their appearance, and these are painful and distressing. The patient sees frightful objects and hears threatening voices, and it is not surprising that his illusions and hallucinations should in turn give rise to delusions. These are unsystematized in character, or at most betray only a feeble and fragmentary systematization. He is about to be tortured or destroyed, or such a fate is in store for others whom he holds dear. As in delirium, he may hear shrieks and curses, or, more rarely, may have terrifying visual hallucinations. On the whole, the auditory hallucinations greatly predominate. Rarely, and usually for brief periods of time, the hallucinations appear to be pleasurable.

The illusions play an even greater rôle than the hallucinations. They make their appearance early, and, frequently, by their prominence obscure the presence of the hallucinations. Usually, however, in the active form here described, the hallucinations are quite evident.

As the confusion becomes established, consciousness becomes more obscured, so that it may no longer be possible to arouse the attention of the patient. The train of thought is disordered and confused, while, as in delirium, there is usually some excitement and hurry of thought. Consciousness is obscured and often dreamlike. The prevailing emotional tone is one of depression, though sometimes laughter and singing and other evidences of exaltation are observed. As a rule, however, signs of exaltation are present for brief periods; very infrequently do they form a feature of the clinical picture. In rare instances, however, they are so marked as to alternate with periods of depression.

Motor excitement is usually present, though it is much less marked than in delirium. However, the patient is restless, and may even try to get out of bed, to run about the room, or to

escape from his attendants. Occasionally, instead of restlessness, there is motor quiet; the patient may lie perfectly still. In some cases, he may remain a long time in one position, and his attitude may suggest the fixation met with in catatonia (see Part I, Chapter V). However, this is infrequent in cases in which the confusion is active. This statement likewise applies to the symptom known as automatism; the patient may preserve for a time a given attitude in which he happens to be placed by his attendant.

The speech of the patient is more or less incoherent, usually markedly so, and the confusion of his ideas very evident. Sleep is much disturbed. The patients sleep but little except as the result of medication, bathing, or other measures. Food is administered with difficulty, partly from loss of appetite, partly as a result of fear and suspicion, and partly because of inability on the part of the patient to recognize the proffered nourishment as food. The nutrition falls and there is loss of weight. The patient may or may not be indifferent to the bladder and bowels; if the confusion is deep, he may be incontinent.

The tendon reflexes may be exaggerated; especially is this the case when the excitement is marked. The pulse is slow, the temperature normal or, now and then, subnormal.

As a rule, the symptoms reach their full development in about ten days or two weeks. The subsequent course is always more or less irregular, the confusion being at times less and at times more pronounced. This condition persists with varying intensity for weeks and months, until gradually a return to the normal takes place. Convalescence is, as a rule, gradual. Little by little the patient, for periods of time, becomes appreciative of his surroundings. The periods of lucidity become more prolonged until convalescence is fully established.

In the larger number of cases a mild excitation or depression is present during the early subsidence of symptoms. At times, after lucidity has made its appearance, hallucinations may still be evident, but they are not pronounced and no longer form the basis of delusions. Gradually they also disappear. During convalescence the patient is often irritable, grumbling, and dissatisfied; at other times he may be a little distrustful and suspicious. Little by little, however, he becomes sensible, more friendly, and manifests confidence in those about him. At the same time that these mental changes are observed, it is also noted that the patient's physical condition is improving. It should be borne in mind that at this stage undue strains or emotional excitement may retard convalescence, or may even induce more or less prolonged relapses.

The duration of an attack of confusion of the active form is approximately from two to four months; rather the latter than the former, and often longer. Mental weakness, more or less marked, may persist subsequently for some time. Exceptionally, many months or even a year or more may elapse before a full return to health takes place.

Diagnosis.—The diagnosis of the active form is readily made. There are present marked confusion approximating at times delirium, marked illusions with or without hallucinations, marked restlessness or, at other times and less frequently, inhibition of movement.

Prognosis.—Death is very infrequent; notwithstanding, it may occur, due at times to extreme exhaustion and at others to complications, such as tuberculosis, disease of the heart or other viscera, sepsis from a bed-sore or other source of infection.

PASSIVE CONFUSION

Confusion does not always present itself, as already stated, in the active form just described. Some cases are so slightly pronounced that merely a mild confusion is noted, illusions only occasionally, and hallucinations not at all. As in the active form, however, exhaustion and intoxication appear to be the basic causes. Indeed, mild confusion is so often symptomatic of exhaustion plus visceral disease that its occurrence should always suggest the latter. It may be purely symptomatic of general causes, such as the exhaustion of overstrain, shock, privation and exposure; or of special causes, such as repeated and excessive hemorrhages, of gastro-intestinal disorders, of arteriosclerosis, of malignant disease, of tuberculosis or other debilitating conditions. Concerning this interesting and important subject, the reader is referred to Part II, Chapter I. Mild confusion may, in contradistinction to active confusion, be properly termed passive confusion, as has already been pointed out. It is necessarily an affection of variable duration. As before, we have to deal with toxicity and exhaustion, and both the duration and the degree in which the symptoms are present depend upon the causes at work.

Prognosis.—As in the active form of confusion, the mental symptom-group offers of itself nothing unfavorable. When general causes alone are at work, the prognosis is influenced in part by the degree of the exhaustion. When due to special causes, the prognosis is, other things equal, the prognosis of the underlying affection.

STUPOR

Simple stupor, also spoken of as stuporous insanity, acute dementia, or curable dementia, is a form closely allied to confusion. Indeed, its relation to confusion is so intimate that it

may with justice be studied under the head of confusion. However, the purposes of clear clinical conceptions are best served by a separate consideration.

Stupor, in its typical form, is characterized by an abeyance of the mental faculties. This abeyance of the faculties may be complete or incomplete, and for practical purposes stupor may be divided into the complete and incomplete forms.

Etiology.—The etiology is that of delirium and confusion. Again, we have a history of infection and exhaustion, of the exanthemata, exhausting fevers, the puerperium, erysipelas, the intoxications, great mental or physical overstrain, shock, fright, etc. Why in a given case these factors produce confusion, and why in another they produce stupor, we can only conjecture. Doubtless the cause is to be sought in the individual susceptibility—*i. e.*, to the greater or less degree of the resistance offered by the patient and to the intensity of the toxic invasion.

Symptoms and Course.—Simple stupor does not make its appearance suddenly. Usually there is a preliminary period of several weeks' duration, during which the patient suffers from more or less marked confusion. Only in exceptional instances is this period short or relatively short. Rarely, especially in cases complicated by profound shock, or in which an infection or intoxication is grafted on a previously existing exhaustion, the preliminary stage of confusion lasts but a few days.

Early in the attack the patient suffers from insomnia, is worried and afraid, complains of headache, inability to think, looks ill, is weak, loses his appetite. Soon mental confusion makes its appearance. The patient begins to lose the proper appreciation of his surroundings, believes himself to be in a strange place, or fails to recognize the people about him. The

confusion from which he suffers becomes deeper and deeper, and the inability to appreciate the surroundings becomes more and more pronounced until he lies motionless in bed, indifferent to everything about him. He will not speak, will not answer. His surroundings do not make the slightest impression upon him. Emotionally he seems placid and indifferent, though at times slight signs of transient emotional disturbances—for example, excitement, depression, weeping—may be noted. As a rule, the face is relaxed, flaccid, expressionless. The limbs lie in the positions in which they happen to be placed. The patient lies quite still. Often he remains in one position, or, if placed in a position by the attendant or physician, may retain this posture for a time. Fixed positions, or automatism, are, however, not present in a typical degree as in catatonia. (See Part I, Chapter V.) The patient is quite helpless; often he is indifferent to the bladder and bowels and soils the bed. Usually the bowels are constipated.

The surface of the body may be cool and the extremities cold; indeed, the body temperature may be subnormal. The pulse is small and somewhat slow. The face is pale or a little dusky, and there may be slight cyanosis or even edema of the extremities. Everything indicates a loss of vasomotor tone, a loss of innervation, great exhaustion of the nerve-centers. The respiration is shallow, though the rate is not much altered. There may be considerable loss of weight, and in women menstruation usually ceases.

The course of simple stupor varies but little for a long time. Three or four months, and often a much longer period, elapses before any change is noted. Sometimes the course is exceedingly prolonged; as in a patient of the writer, a young woman, who became stuporous early in October, remained in this condition until the latter part of the following December,

when she became relatively normal for a period of about two weeks, when stupor again supervened and persisted until the latter part of the following August.

Convalescence is gradual. We first notice some return of expression in the face, perhaps attempts at speaking or gestures, which are more or less intelligible. As a rule, the improvement is first noticed in the evenings, is somewhat less marked in the mornings, and then gradually grows more continuous. During convalescence it is noticed that the patient becomes readily fatigued, and frequently recurrences of confusion are observed under such circumstances; as, for example, when the patient attempts a rather prolonged conversation. The physical signs are also those of improvement; there is a gradual change for the better in the circulation, in the color of the surface, and in the temperature of the extremities. There is also an improvement in the general nutrition and an obvious gain in weight.

Diagnosis.—The diagnosis of simple stupor is not difficult. There is present the history of a previous infection or toxic cause with exhaustion; usually there is the history of the development of the symptom-group in the convalescent period of a fever, or other factors are present, as already outlined in considering the etiology. Simple stupor is to be differentiated from the stupor of melancholia and the stupor of catatonia by the history, and in part by the symptoms. In stuporous melancholia there is always the period of invasion with the typical depression (see Part I, Chapter IV) and self-blame, while the stuporous condition is every now and then broken in upon by periods of melancholic agitation. In catatonic stupor there is again a definite history of a special symptom-group preceding the development of the stupor. (See Part I, Chapter V.) The stupor itself presents rigidity, fixation,

automatism to a marked degree, and there are present from time to time automatic movements, stereotypy, verbigeration.

Prognosis.—As in ordinary confusion, other things equal, the prognosis is good. This is true of the great majority of cases. Usually also the recovery is complete, mental integrity being fully restored. Unhappily, this is not the invariable result. In a small number of cases, mental weakness persists for many months, and, indeed, a permanent, though slight, mental impairment may be established. Rarely this mental impairment is pronounced, and may even assume the form of a terminal dementia. Such a result, however, is very exceptional, and it is probable that in such cases we really have to do with a stupor complicating a dementia præcox. (See Chapter V.) Sometimes also visceral complications make their appearance and determine a fatal result, though this also is rare. At times a tuberculous infection becomes apparent.

INCOMPLETE STUPOR

Incomplete stupor, or stupor with excitement, differs from ordinary stupor in the fact that the stupor is less profound, less absolute, and that symptoms of confusion and physical restlessness are added to the clinical picture. It is really a stuporous confusion, and constitutes, in fact, a transition between ordinary active confusion and complete stupor. It begins with sleeplessness, great irritability, disconnected and excited speech, and physical restlessness, while hallucinations are more or less evident. The case may at first resemble a delirium of exhaustion or a confusional insanity, but in a short time the confusion becomes very deep. The patient is soon unable to understand the simplest questions, and at an early stage loses all touch with his surroundings. As in ordinary stupor, consciousness soon becomes deeply obscured. Hallu-

cinations cease to be manifested. Illusions are no longer formed, for the surroundings are not interpreted at all. As in complete stupor, the face is expressionless, though now and then the signs of some emotional disturbance are noted. The patient is restless, tugs at his bed-clothes, makes purposeless movements, resists, perhaps clings to surrounding objects, or may for short periods assume fixed positions. The general physical signs and general bodily conditions are those observed in simple stupor and need not be rehearsed. As a rule, the administration of food is difficult because of the motor excitement, and sleeplessness may also be a marked feature.

The course, duration, and prognosis of incomplete stupor do not differ materially from those of ordinary stupor. After the lapse of months—three, four, or more—there is a gradual return of an appreciation of the surroundings and generally a recovery. The facts already stated in regard to ordinary stupor apply equally here.

CHAPTER IV

GROUP II—MELANCHOLIA, MANIA, CIRCULAR INSANITY (MELANCHOLIA-MANIA; MANIC-DEPRESSIVE INSANITY)

As already pointed out in the chapter on Classification (p. 30), we have in Group II, melancholia, mania, and circular insanity, forms of mental disease in which the individual attacks are characterized, in general terms, by the following features: first, an emotional state, either of depression or of expansion, which dominates the entire clinical picture and outweighs all other symptoms; second, a wave-like course of gradual increase, maximal intensity, and final subsidence. The widely differing pictures of melancholia and mania are but expressions of one and the same clinical entity. Both phases, as will become apparent later, present the special features of an inherent neuropathy. In keeping with this fact, it is to be noted that heredity plays an important rôle; the larger number of cases—estimated by Kraepelin at 80 per cent., and which, if the truth were known, is probably much larger—present a history of melancholia-mania or other forms of insanity or neuropathy in the ancestry. Again, melancholia-mania, as also pointed out in the chapter on Classification, is apt to occur—though by no means always—in individuals of mobile and temperamental extremes, *i. e.*, in persons who are emotional, readily depressed or excited, or who are, it may be, given to poetic or artistic ideas and day-dreams. This does not imply, of course, that persons who happen to possess the last-mentioned qualities are necessarily neuropathic or abnormal, for if this were the

case, some of the world's greatest achievements in literature, art, and science would have to be looked upon as pathologic. It is, however, quite a usual experience to meet with persons of the temperament here outlined, *i. e.*, the manic-depressive temperament, who make attempts, artistic, literary, or scientific, but which frequently come to naught because of inherent weakness, impracticability, or some other essential defect.

Melancholia-mania occurs most frequently in youth and early adult life, *i. e.*, about the third decade; or, more broadly speaking, between eighteen and thirty years of age. It is not, of course, limited to this period, but may occur much later and, very rarely, earlier. However, it occurs with especial frequency, as just stated, in the third decade of life. This period, we should remember, is one during which the transition from youth to adult life takes place, and is peculiarly subject to emotional upheavals, to emotional stress, and strain. The immature feelings of youth give place to serious love affairs, with their attendant perturbations; the day-dreams of the boy to the ambitions and aspirations of the man. It is an age of expansion, pleasure, and happiness, but also of depression and of suffering. To-day may be filled with the promise of success, but to-morrow may bring the realization of disappointment. That persons who are the victims of an inherited neuropathy—a manic-depressive insanity—should manifest their affliction especially at this period of life is, after all, not surprising. The individual of normal constitution passes through this period unimpaired, but he who is the victim of the manic-depressive neuropathy breaks down, and enters either upon a depressive or expansive wave, or perhaps passes through a succession of both. An interesting fact to be mentioned, is that melancholia-mania occurs more frequently in females than in males, about in the proportion of 2 to 1.

Exciting causes are of doubtful value, though it is believed that profound and sudden grief or other emotional overstrain may in some cases determine an onset. In the vast majority of cases, however, such factors are altogether absent. The usual history is that the attack of melancholia or of mania has come on without any antecedent cause; there has been nothing to which the attack could be ascribed. This is what we would, of course, expect in an affection which is essentially neuro-pathic and hereditary. It hardly seems necessary to add that melancholia, mania, and circular insanity bear no relation to trauma, to infection, or to visceral disease. Unfortunately, in text-books upon internal medicine the statement is still occasionally made that melancholia or mania occur as sequelæ of this or that form of fever or infection, the writer not having taken the care to differentiate mere states of delirium with excitement from mania, on the one hand, or confusion with depression from melancholia on the other.

Finally, it must be constantly borne in mind that, as already stated, melancholia, mania, and circular insanity constitute closely related forms of one clinical entity. The facts upon which this conclusion depends had best be enumerated after the various forms have been studied. The term "manic-depressive insanity," introduced by Kraepelin, has been largely accepted, and is, on the whole, to be preferred to the more awkward expression "melancholia-mania."

MELANCHOLIA

Melancholia may be defined as a form of insanity in which the essential and characteristic feature is a depressed and painful emotional state, more or less persistent, and pursuing, other things equal, a wave-like course. There is also present an abnormal inhibition of the mental and physical activities.

Etiology.—The facts of heredity need not again be rehearsed. Suffice it to say that they apply, it would appear, with especial force to melancholia. Similar remarks apply also to the question of individual predisposition. Melancholia is apt to occur in persons of a timid, repressed, reserved, and introspective temperament. Again, while melancholia, like mania, occurs by preference in the third decade of life, it also occurs at other ages. Notably is it met with at the middle period of life, and is then often spoken of as the melancholia of middle age or the melancholia of involution. There has been a tendency on the part of many alienists, following the lead of Kraepelin, to make of this form of melancholia a separate clinical entity, a position which the facts do not justify. However, a brief separate consideration is accorded it in Part II, Chapter II.

Little is known of exciting causes in melancholia. Profound grief or violent emotions have at various times been supposed to play a rôle; similar is it with excessive fatigue and long continued depressing surroundings. However, patients are met with continually in whom no such factors have been present, and in whom the melancholia has appeared without any antecedent circumstances of significance.

Symptoms and Course.—Melancholia, as we shall see, presents itself in a number of forms. It is the simple acute form which will first claim our attention. Here the course of an attack can be conveniently divided into three periods: first, the prodromal period or period of evolution; second, the period of full development; third, the period of subsidence.

The prodromal period varies somewhat in different cases. In the larger number, however, the onset is exceedingly slow. Weeks and months may elapse before the affection is established. Occasionally, however, the onset is relatively rapid, and, indeed, at times it seems to be sudden. Statements as to

the latter mode of onset, however, I am convinced, are often due to faulty observation, the patient not having attracted the attention of his friends or of those about him until the symptoms had already attained a certain degree of severity. A sudden onset is more frequently ascribed to cases of hypomelancholia, but both the fact and its significance are open to question.

In the ordinary acute form it is usually observed that the patient is nervous, easily depressed, emotionally easily disturbed, and inclined to worry. The appetite is diminished. The nutrition is impaired. There is gastro-intestinal atony, a coated tongue, perhaps a gastric catarrh, constipation. The patient suffers from headache—vague, diffuse, not severe. He may complain of tinnitus. He does not sleep well; indeed, disturbed sleep or insomnia sooner or later become features of the case. There is a general malaise, a sense of weakness, an inability for exertion—a more or less marked loss of energy. The patient loses his color, the vascular tension falls, though the pulse-rate may not be much affected; occasionally attacks of palpitation are noted. Gradually the tendency to worry becomes more pronounced. The patient at first is apt to worry in regard to miscellaneous matters; it may be about business happenings, family affairs, about his health, and later—and this is of great significance—about his past conduct. Up to this time the patient's mind is entirely clear; it does not occur to friend or relative that the patient is suffering from anything but a mild indisposition without much importance; least of all is it suspected that he is developing a serious mental disease.

Gradually the symptoms become accentuated; the depression becomes gradually more and more pronounced, until it finally becomes fixed and unchangeable, and then constitutes the dominant feature of the case.

In the fully developed period the term "mental depression" is wholly inadequate. The picture presented is that of psychic pain, psychic suffering. That it varies in degree, in intensity, in different cases goes without saying. That it is a "pain" that is different from others that human beings are capable of feeling is extremely probable. It would seem that in some patients the suffering corresponds to the painful emotions experienced when normal persons are sad or are suffering from sorrow or from grief, but in others, and unhappily in the larger number, the pain is more intense, and appears to be in the psychic world of feelings what trigeminal neuralgia is in the physical. Doubtless it was some such thought as this that prompted Clouston to term this condition "psychalgia."

The attitude, the expression, and the words uttered are all indicative of mental pain and suffering. The face is pale and its features drawn and distorted, as though by sorrow, grief, despair, hopelessness. The head is bowed, the shoulders drooping, the arms hanging, the whole attitude one of listlessness and dejection. The patient is quiet, sits still, remains apart and by himself, evidently wishes to be let alone. Frequently he will not talk. When spoken to or perhaps brusquely disturbed he may weep. If he does speak, we may find that his voice is low, that his speech is hesitating, his manner abstracted, or, it may be, that he will tell of the sin he has committed, of his moral worthlessness, of the hopelessness of the future.

We note that he speaks slowly, that his thoughts are retarded, that, in addition to his physical inhibition, there is also an inhibition of cerebral activity. In some cases this symptom becomes very marked. He then talks very little, the speech is slow, often limited to a few words and short phrases, and even these are uttered as though the patient unloaded them with an

effort. In keeping with this is also the fact that cases of melancholia write very few letters.

Added to the cardinal symptom of psychic pain there are, as already hinted, delusions. These delusions are unsystematized or feebly systematized, and are always of a painful and of a depressive nature. The patient believes that he is in a state of moral worthlessness, moral ruin, that his soul is hopelessly lost, that he cannot be saved. There arises in the great majority of cases a delusion, known technically as the "delusion of the unpardonable sin." Some act of the patient's past, often trivial and inconsequential, may be taken up and construed as a sin, a crime that cannot be undone, that cannot be atoned for. Most frequently the delusion relates to some entirely imaginary experience. Thus a woman of unimpeachable virtue may believe that she has sacrificed her chastity; a man of unimpeachable character, that he has been hopelessly wicked. The patient constantly reproaches himself. He has brought misery and suffering upon others, has ruined and disgraced his family, has hopelessly offended God, he can never be forgiven, his soul is lost, endless pain and punishment lie before him. He is fearful and timid, sometimes believes that he is in prison, or that he is to be executed for some crime.

The delusions of melancholia are always characterized by the fact that the patient invariably refers the cause of his suffering to himself. It is always himself who is to blame. It is always himself who has wrought the ills from which he suffers, who has caused misfortune and pain to others. He alone is the author of the terrible situation in which he finds himself. Even when he believes that he is being punished by others, is being poisoned, tortured, eviscerated, sentenced to death, it is always a punishment which he has brought upon himself, a punishment which is being inflicted upon him justly and which is the result of

his own acts. The delusions are never truly persecutory, always self-accusatory, and this constitutes a most important point in the differentiation of melancholia from the depressive phases of the paranoid states; in the latter, as we will see, the patient always seeks for the explanation of his suffering in the outside world.

As has already been stated, the patient talks very little, and then only about his terrible plight. It is the constantly recurring story of his self-blame; the delusive tale is told again and again, and always with the same conviction of its truth and reality. He is not sick, he does not require a doctor, he has simply been wicked, hopelessly wicked. At times the patient cannot be made to talk at all, but will merely sit and moan; sometimes he gives vent to cries and lamentations. At others he will repeat, in tones of monotonous suffering, the same phrase or expression as did one of my patients, a woman, who suffered from the delusion of violation of chastity. She would for hours repeat in inexpressible anguish the phrases "If I had only said 'no!' said 'no!' said 'no!'" So great and long continued, so distressing were these lamentations, that they constituted a severe strain upon her nurses.

In the acute form, the form which we are here considering, hallucinations are also prominent; indeed, they are very frequent. Quite commonly they consist of hallucinations of hearing. The patient hears voices, curses, and cries, words of reproach, is told of his crimes, of his sins. Sometimes the patient hears the cries and shrieks of others—men, women, children—whose suffering he has brought about.

In pronounced cases, though less frequently, hallucinations of sight may also be present. The patient suffers from horrible visions, sees phantoms, death's heads, scenes of suffering, blood, massacres, people being burned alive. At such times the

visual and auditory hallucinations seem to be associated and combined.

Hallucinations of taste and smell can also be recognized as existing in some cases. As in hallucinations of sight and hearing, they are always painful, and consist of bad odors and disgusting tastes. Very frequently, also, illusions of taste and smell are present. The food tastes horribly, it is decomposing, putrescent, consists of urine and feces, the flesh of corpses.

Visceral hallucinations and general or local somatic hallucinations referred to this or that part of the body, to the surface, to this or that organ, are present in varying degree in different cases. They are always distressing and painful in nature, and doubtless enter into beliefs of torture, suffering, and punishment.

A few additional facts as to the condition of patients in the fully developed period of melancholia deserve to be mentioned: First, the patient's distress and delusions are concerning himself; as regards others, relatives and friends, he is apathetic or indifferent; indeed, sometimes he shows aversion. Rarely does he manifest anxiety in regard to others, and then usually only when the latter are in some way entangled in his delusions. His indifference extends also to his surroundings, to his personal appearance, and to his dress.

Second, the visceral signs of the initial stage become in the fully developed period accentuated. Every symptom points to a pronounced loss of nervous tone, to a defective innervation. There is now a marked gastro-intestinal atony. The lips and mouth are dry, the tongue is white and pasty, the saliva scanty and thick, and there is marked fetor of the breath. Often there is present an acid indigestion. Almost always there is present a severe and sometimes obstinate constipation. The loss of appetite is now very profound. The patient may

experience a veritable disgust or fear of food. This symptom is frequently spoken of as satiophobia. Sometimes he entertains the delusion that it is wicked for him to eat or that God has forbidden him to eat.

The circulatory apparatus also reveals changes. The force of the beat of the heart is lessened, the arterial tension lowered. The surface of the body is pale, the extremities are cold, and their distal parts are often dusky or cyanosed; even slight puffiness or edema may be noted. The pulse-rate is not much changed; quite frequently it is a little slower than normal; at other times, under circumstances to be considered later, it is increased. The temperature, more especially the surface temperature, may be distinctly subnormal; more particularly is this true in cases which pass into the stuporous form. The blood shows some, though not marked, diminution in the erythrocytes and also in the percentage of hemoglobin. D'Abundo believes that its bactericidal activity is lessened.

The respiration, with certain exceptions to be noted, is somewhat slower and somewhat shallower than normal.

The urine is usually lessened in amount; its specific gravity is frequently increased, though it may be diminished. It also appears to have a higher coefficient of toxicity than normally. The proportion of phosphates varies somewhat; the earthy phosphates are increased, the alkaline phosphates diminished. The output of nitrogen, as one would almost expect, is lessened.

The skin is abnormally dry and the hair brittle. The perspiration is usually much diminished. Owing doubtless to the lessened amount of fluid in the tissues of the skin, the electric resistance of the latter is increased.

The loss of weight noted in the initial period is more pronounced in the fully developed period. In women menstruation becomes scanty, irregular, and quite commonly ceases.

From the strictly neurologic point of view the patient presents but few symptoms. The muscles lack tone, the patient is physically weak. The reflexes, save during periods of excitement, reveal no changes of moment. The cutaneous sensibility appears to be lessened, though this may be due to the mental state. The same applies also to the special senses. They reveal no physical signs. The sphincters are normal. Sexually the patient is indifferent.

An all-important fact to bear in mind in regard to melancholia is the tendency to suicide. This is present in practically every case, a point that cannot be too strongly insisted upon. At times it is but slightly marked; indeed, it may be denied by the patient. The latter may say that life no longer holds anything for him, that he might as well be dead, yet, in reply to questions, he may answer that he has never thought of killing himself. Quite commonly when the patient makes this statement I am convinced that he is attempting a deception; he dreads the supervision and possible restraint which the admission might entail. More dangerous to the successful conduct of such a case is the fact that relatives, often a mother, wife, or sister, flouts the idea of suicide and prevents the institution of protective measures until too late, or interferes with such measures after they have been instituted, with fatal consequences. Thus, a mother withdrew her daughter from an asylum; death by pistol wound on third day. A wife withdrew her husband from the watchful care of an attendant and encouraged him to resume his business; death on seventh day from gunshot wound of head. Every alienist can cite such experiences.

The methods which patients adopt depend somewhat upon the individual case, the opportunities presented, the nature of the delusions, and whether or not the patient is under super-

GROUP II—MELANCHOLIA, MANIA, CIRCULAR INS

vision and the character of that supervision. Among methods adopted are asphyxiation with illuminating gas, swallowing laudanum or other poison, inhalation of chloroform, hanging, strangulation, cutting the throat with a razor, death by firearms, drowning, leaping from a height or head foremost from a window, swallowing broken glass, wounds with cutting instruments, knives, and scissors.

Sometimes the patient adopts some particularly horrible method, as in the case of a woman who, being ill-advisedly removed from the asylum by her relatives, burned herself to death at her own home. It would appear that such methods are in the punitive character of the delusions which these patients frequently entertain.

Sometimes the attempts at suicide are wholly inadequate and childish; as, for instance, the chewing and swallowing of pins, or the tying of a handkerchief or cord around the neck, but with insufficient force to do any harm. Patients quite frequently lack the decision and determination to carry out the suicide which they have planned; especially is this the case if the method requires strength, force of will, or sustained effort, as in self-strangulation. And yet patients who now and then fail with one method are often successful with another, as in the case of a patient who failed to prick her temporal artery with her hat pin, but subsequently shot herself through the heart. It is the sudden leap into the water, the leap from the window, the pistol shot—the act that requires but the momentary rather than the continuous effort—that is so often chosen. A method that patients often persist in for a time, and which, but for intervention, would occasionally be successful, is starvation. Because of the loss of appetite and, indeed, actual disgust for food so markedly present in the average case, the

patient often abstains from food spontaneously, and, if the sutiophobia appears to be associated with the delusion already mentioned that it is wrong for him to eat, he may readily drift into starvation as a means of self-destruction; it requires no effort on his part, merely a passive acquiescence.

MELANCHOLIA WITH AGITATION

The picture of melancholia thus far outlined is that of the ordinary acute form. Stress has been laid upon the fact that the patient moves but little, that he tends to remain quiet for long periods of time, often in the same position, that his speech is slow, and that his thoughts are retarded. The picture is often one of marked mental and physical inhibition. However, the attack does not always present itself in this form. Every now and then, a case is met with in which the quiet is broken in upon by periods of agitation. The agitation is at times preceded by a premonitory restlessness; more frequently, however, it appears as a sudden outbreak. During the attack the patient moans, wrings his hands, shrieks, complains of his terrible plight, may tear his clothing, struggle with his attendants, attempt desperately to kill himself. At times the attack amounts to a veritable frenzy, the so-called "melancholic frenzy" or "raptus melancholicus." At other times the agitation is less intense; the patient is restless and disturbed, terrified and anxious, moans and cries out. The condition may persist for some time, and is then commonly spoken of as "melancholia agitata." In some cases of melancholia, agitation never supervenes; in others, agitation occurs in episodes; in others still, it is present during a large, a major portion, or even during the entire attack. The transition from the agitated to the quiet phase may be gradual; sometimes it is quite rapid.

After the fully developed period has lasted for a time—

usually several months—the patient begins gradually to improve. His depression gradually grows less, his hallucinations disappear, his delusions become less insistent, he begins to take more food, to sleep better, to gain in weight, and little by little convalescence is established. He again becomes cheerful, and finally reaches a normal level. As a rule, the symptoms subside gradually. Usually the memory of the attack is more or less clouded for the period of the maximum intensity of symptoms.

The duration of an attack of simple acute melancholia—*i. e.*, a first attack—is about four months. Rarely is it less, and not infrequently it is very much more.

The course of an attack of melancholia is by no means always uniform; there is not always the history of a gradual increase, a maximum and a gradual subsidence of symptoms. Sometimes the course is intermittent and irregular. The depression in such cases is not uniform, but subject to sudden lessening and sudden exacerbations, variable alike in intensity and duration. As might be expected, cases with an irregular course offer a less hopeful outlook as regards the individual attack.

Diagnosis.—The diagnosis of melancholia is, as a rule, not difficult. The history of a gradually oncoming and deepening depression, the self-accusatory attitude of mind, the delusions of self-blame, of the unpardonable sin, the evident reference of the suffering of the patient to himself, leave no doubt as to the nature of his affection. Little excuse can be given for confounding such a case with the symptom group of the fatigue neurosis, neurasthenia (see Part I, Chapter VI), and still less for mistaking it for paranoia. In the latter affection the patient refers his sufferings to the external world, and seeks their explanation in persecution and conspiracies.

Prognosis.—The prognosis is favorable as regards the indi-

vidual attack in the large majority of cases. However, death from exhaustion every now and then occurs. Sometimes, too, visceral complications arise, though these are infrequent. Unfortunately melancholia is an affection which is essentially recurrent, and which bears, in individual cases, close relations to mania, and is, indeed, often but one phase of a larger affection, circular or manic-depressive insanity. The prognosis of the latter affection is considered as a whole at the close of the present chapter.

HYPOMELANCHOLIA

Melancholia does not always present itself in the form here outlined. Every now and then, it is met with in a subacute form, a form which can properly be termed "hypomelancholia." It then presents the following peculiarities: In mode of onset it is said to be more rapid and, indeed, at times sudden, though this hardly accords with the experience of the writer. There is again a painful emotional state, long continued, but which falls below that of typical acute melancholia in intensity. Its degree varies in different cases and often at different times in the same case. Sometimes it consists merely of a simple prolonged wave of depression; at others it is more marked, and may even at times approximate the depression of ordinary melancholia. Sometimes, again, episodes occur in which the depression is much accentuated. On the whole, however, it pursues a distinctly milder course.

The physical and psychic inhibition, noted in ordinary melancholia, is also a marked feature here. The patient is inactive, lacks energy and initiative. At first he forces himself by sheer effort of will to do his daily work, indeed, to perform the simplest duties. Soon he puts off his engagements, defers answering his letters, becomes more and more indifferent to his obligations, and finally fails utterly to meet them. He avoids

effort, occupation, society, cannot exert his will to meet the ordinary routine of his daily living; remains at home, perhaps in bed, incapable of effort.

Though the psychic suffering is not as acute as in ordinary melancholia the attitude of mind is the same. The patient worries, blames himself, finds fault with himself because of things he has done or because of things that he has failed to do. His ideas may acquire all the force of delusions; or typical delusions of the unpardonable sin may develop. Very frequently, however, when delusions are present they are somatic—*i. e.*, hypochondriac in character—the patient believes that he is hopelessly ill, has this or that incurable visceral or constitutional disease. At other times, his ideas are religious, and then, as before, self-blame and hopelessness play the essential rôle. At others still, though much less frequently, the ideas are persecutory, but here again the acts of his friends and neighbors, the various things that are being done to him, are the result of his own conduct and he himself is to blame.

Hallucinations of hearing and of the other special senses are very infrequent. However, somatic hallucinations, vague and ill-defined, appear to be present in many cases, and doubtless serve as a basis for hypochondriac ideas. Sometimes there is a general feeling of bodily illness, a general cenesthetic hallucination.

In the experience of the writer hypomelancholia occurs more frequently among men than among women. The duration of hypomelancholia is, as a rule, very prolonged. The altitude of the wave is less, but it extends over a relatively longer period of time. Sometimes, as we will see, it forms—as may ordinary melancholia—but one phase of a larger cycle. Both its duration and its outcome are matters most difficult of prognostication. However, it can be safely hazarded that the patient will after many months, a year, a year and a half, recover from

his attack, but whether the attack will be followed by a period of lucidity or will suffer transition into a phase of expansion cannot be foretold.

The danger of suicide in hypomelancholia deserves a word. In my experience this danger is decided. The patient's lucidity is frequently so pronounced, he is relatively so clear, that it is often impossible—indeed, impracticable—to surround him with adequate protection. Commitment can only rarely be advised. The relatives and friends, too, as a rule, scout the idea of confinement in an asylum. The patient himself rejects the proffered nurse or attendant. It is not surprising, therefore, that under these circumstances he not infrequently kills himself; sometimes, and, indeed, usually, he commits the act in an impulse bred of an accession of symptoms. The danger is the greater because the true nature of the affection is not always recognized. Patients suffering from hypomelancholia every now and then are mistaken for cases of nervous prostration, neurasthenia, nervous dyspepsia, and like disorders.

Finally, some patients appear to be in a condition of melancholic depression throughout the greater part of their lives. All of their thoughts, acts and experiences are accompanied by feelings that are distressing or painful. The term "constitutional emotional depression" adequately describes their condition, and their cases may be looked upon, in a sense, as representing the underlying neuropathy of which the frank melancholic attack with its wave-like course is the more complete expression.

MELANCHOLIA WITHOUT DELUSIONS

Melancholia occasionally presents itself in a third form—*i. e.*, an attack which may otherwise resemble a typical attack of acute melancholia, or, it may be, of hypomelancholia, is distinguished by the fact that there are present no delusions nor any special sense disturbances, neither hallucinations nor illusions.

The patient's mind is entirely clear. There is present, in addition to the physical signs of exhaustion and depressed nutrition, but one symptom, namely, that of mental pain—*i. e.*, there is present a psychalgia and nothing more. This psychic suffering may be relatively mild, but more frequently it is intense and may attain the degree of severe agony or of exquisite anguish. Such patients suggest no ideas, no explanations as to their condition—*i. e.*, there are no ideas of self-blame, no delusions of the unpardonable sin, no delusions of bodily illness; merely a persistent suffering. Not infrequently such patients become agitated and sit for hours rocking to and fro, giving vent to constantly repeated moans or other sounds indicative of the great distress from which they suffer. Such cases are spoken of as cases of melancholia without delusions, melancholia sine delirio, or lucid melancholia. As in other forms of melancholia, there is a danger of suicide. This danger, as in hypomelancholia, is somewhat enhanced by the fact of the lucidity of the patient and the consequent difficulty of exercising supervision. Of course, in cases in which the suffering is so great that the patient becomes agitated and noisy the friends more readily consent to commitment or to other forms of protection.

In the experience of the writer, while the course of lucid melancholia is that of a gradual increase, maximum intensity, and gradual subsidence, the duration of the attack is usually very prolonged; many months, sometimes years.

MELANCHOLIA WITH STUPOR

As has already been pointed out, the patient with melancholia suffers from a more or less marked inhibition, both physical and psychic. He sits quietly by himself, will not move, will not talk. In some cases this inhibition becomes so pronounced that he sits in his chair or crouches in a corner mute and motionless, as though spell-bound. The attack begins,

as a rule, like an ordinary melancholia, but the quiet and listlessness gradually deepen until finally the patient is inert, immobile, and apparently indifferent or oblivious to what goes on about him. He may sit in a chair with his chin buried in his breast, or he may lie motionless in bed. The features are drawn, contracted, expressive of suffering. The pupils are dilated or usually so, the eyes are closed or the lids are drooping. The patient cannot or, at any rate, does not speak, though now and then a few, usually incomprehensible, words issue from his mouth. If he be placed in a position, perhaps an awkward or uncomfortable one, which under ordinary circumstances readily induces fatigue, the position may be maintained for a long time. There are, however, no truly cataleptic, no catatonic, symptoms present. Very often, indeed, the patient assumes spontaneously most uncomfortable attitudes, probably as a result of his delusions, which may be punitive as well as painful. As in other forms of melancholia, he sleeps but little, and may be found at night half-seated in bed or in some other position which indicates that he is not or has not been sleeping. The temperature is sometimes a trifle subnormal; the features and body surface are pale; sometimes there is a moderate degree of lividity of the extremities; the pulse is slow and small; the respirations diminished. The tongue is coated, sputophobia very marked, constipation obstinate. Cutaneous sensibility is very much diminished; that is, the mental reaction to tactile and painful stimulation is diminished. Every-now and then, the quiet of the patient is broken in upon by an attack of agitation, during which he is more or less disturbed, is restless, cries out, and moans. Sometimes the phases of agitation are very slight, and consist in fitful and transient changes in expression, movements, or whisperings. In some cases, again, phases of agitation are not observed at all.

This form of melancholia is spoken of as melancholia with stupor or melancholia attonita. It must not be confounded with the stuporous states which are related to confusion and delirium or which are observed in catatonia. In both of the latter instances, not only the history of the case, but also the symptoms present, enable a ready differentiation to be made. During the period of subsidence, the patient may speak of his painful feelings and suffering, may speak of his delusions of self-blame, of his unworthiness, of his sins, and in this way furnish additional evidence of the nature of the attack through which he has passed.

As a rule, melancholia with stupor subsides gradually, though sometimes it does so rapidly. The duration is, as a rule, prolonged. The great majority of cases recover from the individual attack, though the prognosis is not as good as in the ordinary form. Sometimes, too, there are severe diarrheas; at other times, the exhaustion is so profound as to threaten death.

MANIA

Mania may be defined as a form of insanity in which the essential and characteristic feature is an expansive emotional state, more or less persistent, and pursuing, other things equal, a wave-like course. Not only is the emotional state the reverse of that which we observe in melancholia, but this is true, as we will see, also of the other symptoms; *e. g.*, instead of there being a general mental inhibition and slowing of thought, there is here an exaltation of the mental faculties, an abnormal rapidity in the flow of ideas. Similarly, instead of physical quiet and torpor, there is in mania physical restlessness and activity. In other words, along with the expansion there is a general release of inhibition.

Etiology.—Little need here be repeated as to etiology. That which applies to manic-depressive insanity, as a whole, applies also, of course, to mania. Suffice it to say, that persons who are especially disposed to manic waves are thought to have “excitable temperaments.” It is also observed that they react badly—*i. e.*, too readily—to stimulants, or, to put it in ordinary phraseology, have feeble resistance to alcohol. Again, while occurring by preference in the third decade of life, mania may, like melancholia, occur much later. Clinical experience, on the whole, shows that the attacks are massed, so to speak, at the early period of life, and that they occur with rapidly diminishing frequency as middle age and the later periods of life are approached.

As in melancholia, exciting causes are of doubtful value. Mental and emotional overstrain, sudden shocks, great excitement, are much more frequently absent in the clinical histories than present.

Symptomatology and Course.—As in the case of melancholia, the simple acute form first claims our attention. In like manner its course can be divided into three periods: first, the prodromal period or period of evolution; second, the period of full development; third, the period of subsidence.

It is quite common to speak of the attack as beginning with an exaltation or expansion which gradually or rapidly increases in intensity. However, in some cases, a period antecedent to the onset of expansion is observed in which the patient is depressed. This period is, as a rule, very short, a few weeks, a few days, or perhaps only a few hours. Very frequently no history of this antecedent period is obtained, and perhaps for the reason that the patient has not been under observation. Under average conditions little attention is paid by relatives to an individual member of the family unless the latter presents marked or striking symptoms. An attack of pain, an

attack of fever, of delirium, or of other excitement, will at once attract attention, but the vague and ill-defined symptoms of this antecedent period are of such a character as may readily escape notice. On a few occasions it has been my fortune to be summoned during this period; most frequently, however, I have not been called until manic symptoms were in frank and full development. Sometimes a history that the patient was not well before the onset of the excitement can be obtained from the mother or other close or intimate relative or friend; at other times the inquiry proves futile. We are frequently left in the dark as to the detailed personal history of patients who do not attract attention until they commit some overt act; *e. g.*, in paranoia, in which affection we know that, despite the frequent paucity of evidence, antecedent symptoms must have long been present. It is a justifiable position, therefore, to assume that in mania an antecedent period of depression is more often present than actual observation would indicate. Personally my feeling is that such a period always exists, though perhaps this is going too far. However, there is nothing inherently improbable in this. Cases of mania constantly occur in which the attack frankly follows a well-marked and typical wave of melancholia, thus forming a phase of the cycle, circular insanity. It is not improbable that the preceding depression is sometimes very mild and for this reason not observed, and sometimes also very short.

What are the symptoms of this antecedent period? The patient is depressed, nervous, worried, irritable. He cannot eat, cannot sleep, complains of headache, and perhaps of other distressing sensations; has indigestion, constipation. These symptoms subside rapidly, it would appear, and are replaced by those of mania. The vague sensations of depression and discomfort give way to a sense of well-being, and the patient now enters into an expansive state.

The symptoms that supervene are the opposite of those observed in melancholia. Instead of being quiet and listless, he is now restless and excited. Instead of being mute or chary of speech, he is now talkative and even noisy. Emotionally and intellectually he seems as though exalted, and he may even appear brilliant when compared to his ordinary self. At this time, also, a man who is usually reserved, quiet, and well behaved may commit venereal and alcoholic excesses. In the early period, too, the patient may write letters. These are exaggerated in style, filled with exclamation marks and numerous underscorings, and often, like the speech, broken and unintelligible. Soon the symptoms become more and more pronounced, and the patient enters into the fully developed period of his attack.

The state of mind in mania must first be considered in order that the detailed symptoms may be properly understood and appreciated. Few if any writers give due weight to the fundamental facts of the manic state, and content themselves with a mere recital, a clinical portrayal, of symptoms; but this hardly leads to adequate conceptions of the affection. Further, I have for many years believed that the manic state could not be comprehended unless melancholia were studied first; depressive states so commonly precede the evolution of mania that this sequence of study seems to me to be, also, a natural one.

It has just been stated that the symptoms of mania are the opposite of those observed in melancholia; it should, with emphasis, be added that the underlying states upon which these symptoms depend are exactly opposite to each other. This statement necessitates a brief analysis. To repeat a cardinal fact, there is in melancholia a depression, a painful emotional state, a psychalgia. If it be true that in mania we have an opposite condition, this does not mean that this opposite condition is joy, happiness, ecstasy; indeed, this is not the case,

for joy, happiness, and ecstasy imply a subjective, an egocentric, attitude of mind just as much as do the depression, the soul-ache, the psychalgia, of melancholia. The mental attitude of mania is the opposite of the attitude of melancholia; it is objective; it concerns itself not with its own feelings, with its own ego, but with the external world. There is no concentration of the mind upon itself or upon its own processes, for the stream of thought is outward. The patient does not tell us how he feels; he does not say "I feel well, I feel good, I feel fine," but we *infer from his conduct* that he has a sense of well-being. He is boisterous, boastful, buoyant, acts as though he were elated, as though he were in the best of spirits. This attitude, or, better still, this tone of mind, is closely associated with, indeed part of, another symptom, namely, that of the heightened flow of thoughts and impulses. Here, again, we have a second fact the exact opposite of that in melancholia. In melancholia thoughts and impulses are inhibited; their flow is sluggish, retarded, restrained. In mania they are unrestrained and massive in number and may pour forth like a torrent.

With these two facts before us, let us turn our attention to the symptoms more in detail; and we will assume that our attention is directed to a typical acute attack.

The patient, as already indicated, is in constant motion; his movements are coarse and exaggerated, his gestures extravagant. His manner is aggressive, his expression animated, his color heightened, his conjunctiva tense and brilliant. He laughs and frowns in quick transition. He talks incessantly. His thoughts flow with great rapidity and he constantly gives vent to them. His style is boastful, declamatory.

In keeping with the objective mental attitude, he rapidly embraces the objects and persons in a room in the scope of his perceptions, but fastens his attention upon nothing. One of

the striking features of mania is this fault of the attention. It cannot be attracted for any but the briefest period of time. It is fleeting and fragmentary in the extreme.

Again, so rapid and hasty are the acts of perception that the patient constantly makes mistakes as to the identity of persons and the character of objects. Strangers may be greeted as old acquaintances, addressed by familiar names, or associated with incidents with which they have no connection. The things about the patient, too, may serve to evoke numerous and bizarre ideas with which these objects have no relation. Illusions of perception thus constantly occur and are more frequent, it would appear, as regards persons than as regards objects.

The significance of these illusions and the fictitious memories they arouse becomes apparent as we listen to the patient's speech. Soon we become aware that the disturbed mental processes are in part owing to an increased ease and rapidity of association, and especially to an association that is unusual, bizarre, often frankly abnormal. Thus, the patient sees the doctor or an attendant; at once some quality or number of qualities of the latter—*e. g.*, tone of voice, attitude, gesture, color of hair, clothing, or what not—evoke in the patient's mind associations, multiple and crowded, that cause the patient to mistake, not only the identity of the person, but also to misplace the latter altogether in time and place. The stranger is spontaneously associated with persons the patient has previously known. Trains of ideas are thus aroused which the patient combines with the individual before him. Similarly, every object, the surroundings, the room in which the patient finds himself, becomes a point of departure for equally numerous and abnormally related associations. The illusions are apparently due in part to the fragmentary and imperfect character of the perceptions and in part to the abnormal associations aroused.

The associations impress one as striking, unexpected. Often they seem witty; often they appear as attempts to rhyme, to make puns, to play upon words. Further, while listening to a case of mania we are impressed with the enormously increased flow of ideas, but, as the case develops, we are also impressed by the changing, evanescent, unessential character of the thoughts. The thoughts are, after all, not so rich in ideas as in words; the wonderfully increased association is found to be rather the association of coarse qualities, such as sounds, than associations of meanings. The more the case develops, the more evident does this coarse association, especially this sound association, become. The supposed exaltation of the mental faculties is soon found not to be genuine; instead a real paucity of ideas develops which becomes more apparent as the case progresses; and the seeming richness of association often degenerates into the stringing together of merely similarly sounding phrases, words, or syllables.

The phenomenon of the enormously increased association in mania is, when we pause to reflect, in keeping with the heightened nervous outflow. It is legitimate to infer from the intense motor excitement, the restlessness and incessant speech, that nervous discharges pass in great volume through the efferent branches of the neurones, more particularly the neuraxones, but it is also legitimate to infer that an overflow likewise takes place through the other branches, the collaterals and dendrites. It is doubtless upon just these structures that association normally depends. In the case of many neurones, all of the cell processes serve this function. It does no violence to the facts to suppose that, in the peculiar morbid state of the neural protoplasm, nervous energy is evolved with unusual ease and flows with lessened resistance along the cell processes. It is doubtless diffused through the nerve tissues far more rapidly

and readily than normally, and in this way gives rise not only to the motor phenomena, but also to those of a disturbed association. We can understand why, under these conditions, the overflow should pass along unaccustomed channels and thus give rise to unusual, to bizarre, to pathologic associations. We can also understand, perhaps, why the associations should lose their intimate, elaborate, and finer qualities; why they should become coarse or relatively so. Normal acts of association require time, and probably so in proportion to the amount of detail. In mania such acts take place with abnormal speed and in abnormal number. The discharges are doubtless diffused en masse, and probably along the larger pathways in which a lessened resistance is encountered. Probably upon these facts depend the coarseness and superficiality of the associations. Fatigue of the finer collaterals and dendrites may also play a rôle, so that as the case progresses coarse and flaring associations only are presented.

It can readily be understood that in acute mania the current of ideas is never uniform. The patient is incapable of carrying on a special train of thought or giving quiet and adequate consideration to any subject. Indeed, he passes with leaps and bounds from one thing to another. Soon his ideas may flow so rapidly that his speech can no longer keep pace with them. He jumps from one sentence into another; passes from phrase to phrase, word to word. It cannot be surprising that under these circumstances, due to the inconstancy, the non-consecutive character of his thoughts, the disturbance of association and the speed of his utterance, that he becomes *incoherent*; what we hear may be, and often is, merely a disjointed torrent of words.

In the early stage of mania, incoherence may not be present, and, even when beginning, may be more apparent than real,

and it may be possible in large measure to follow the utterances of the patient throughout. Further, in cases that are relatively mild, incoherence may never occur. It does not, therefore, form a necessary symptom of mania. However, in typically acute cases, it is not only established but becomes marked as the affection progresses.

Delusions as such play no rôle in mania, a fact which the previous discussion might well have led us to anticipate. Delusions presuppose reflection, some degree of introspection and analysis, but nothing of this kind occurs in mania; the entire attitude is emissive, objective. However, the patient seems to have an expanded sense of well-being; he may manifest excessive notions as regards his strength and powers generally. He is boastful, ambitious, erotic. Transient ideas of greatness, importance, or consequence constantly manifest themselves, but they are not evolved into well-formed delusions. Least of all are they systematized or fixed; they shift with the constantly changing and illusory perceptions and manifold associations.

Hallucinations, also, form no part of the clinical picture of mania. They do occur, but their occurrence is only occasionally noted. The patient is so taken up with that which is going on about him that he either does not observe or pays no attention to hallucinations if present; only now and then, during a relatively quiet period, does he react in a way which justifies us in assuming their existence. Suffice it to say, however, that in by far the larger number of cases they are clearly not present.

Sleep, as might be expected, is greatly disturbed. Usually it is for a time abolished altogether; insomnia is stubborn and resistant, and persists more or less during the active period of the attack.

Cases of acute mania differ of course considerably from each other. One case may be relatively mild, the symptoms suggesting perhaps, in the degree of their intensity, an alcoholic intoxication. In others the excitement may reach a very high degree. The patient who early in the attack is good natured, pleased, and in a measure tractable, may later become exceedingly violent, may tear his clothing, and may strip himself nude. He may become combative; the slightest cause may provoke explosions, during which he curses and shouts, gives vent to threats, abuse, and vituperation; his language is profane, filthy, and obscene. Sometimes he becomes wildly destructive, and attempts frantic attacks on those about him. Happily outbreaks of such severity are infrequent; nevertheless they occur and are, it would seem, somewhat more common among women than among men.

At the best, the manic patient is untidy and dishevelled. Sometimes he wears his clothing in some grotesque fashion; at others, as just stated, he may remove it altogether. Everything denotes a loss of inhibition; quite frequently the patient is erotic, indulges in indecent acts and gestures, exposes the person, and uses obscene words and expressions. Masturbation too may be practised. He may also become filthy from his indifference or inattention to his necessities. He may urinate or defecate upon the floor. Sometimes he smears the dejecta upon the walls of his room, sometimes upon his person, sometimes he rubs them into his hair, his mouth, his ears.

The physical signs may be enumerated briefly. The restlessness may be accompanied by an exaggeration of the muscular strength; it seems, especially at times, to be actually increased. The patients often give vent to muscular efforts, exceedingly violent and prolonged. The tendon reflexes are not especially altered. The cutaneous sensibility appears to be diminished;

especially is this the case with regard to impressions ordinarily painful; contusions, bruises, cuts, and even more serious injuries receive little or no attention from the patient; this is also true of heat and cold. Doubtless this indifference is again to be ascribed to the emissive, the "extraneous" mental attitude.

The special senses appear to be more acute than normally; perhaps it would be more correct to say that the patient reacts inordinately to visual and auditory impressions. It is quite evident, as has already been pointed out, that he does not perceive clearly and accurately, does not interpret his impressions correctly.

Digestion is at first impaired; the tongue is coated and there is constipation. Later, the tongue becomes clean, at times even red and glazed; constipation disappears. The appetite, which is diminished or abolished in melancholia, is exaggerated in mania, sometimes excessively so, the patient eating gluttonously.

The pulse is somewhat rapid, usually more so in periods of increased excitement. As the attack progresses it usually becomes somewhat slow and often small. The force of the cardiac impulse is usually increased, but the vascular tension appears to be diminished. The temperature is usually normal; rarely it is slightly subnormal. A rise of temperature always indicates a visceral complication.

The secretions are but slightly changed. However, the saliva may be increased in amount; many patients are continually spitting. The perspiration is also in some cases increased; sometimes it has a distinctly greasy and sticky feel, and is said to suggest the odor of mice. At other times, the skin is dry, though this is the exception. The urine likewise is increased in quantity, but the chemical examination reveals no changes of moment; possibly a diminution of the phosphates.

In women irregularity or suppression of menstruation is the rule. If the menses appear, there is apt to be an exacerbation of the excitement.

That there is loss of weight in the course of an attack, together with marked exhaustion, especially in severe cases, need hardly be pointed out.

An important fact remains to be noted; namely, memory in mania may be better than in health; *i. e.*, it may be exaggerated. The patient is often, in a large measure, cognizant of his surroundings throughout; he may, therefore, remember subsequently the detailed events of his illness to a surprising degree; a true hypermnesia may exist. Marked impairment of memory, it should be added, only occurs when the mania has become complicated by the confusion of exhaustion—itself unusual—and is then clouded only for the period during which this confusion existed.

After the maximum period of symptoms has lasted for some time—*e. g.*, two, three, four, or more months—the symptoms may begin to decline. The excitement gradually subsides, the sleep improves, the patient gains in weight, and little by little again becomes normal. Sometimes the convalescence is irregular and interrupted, at other times the return to the lucid state is sudden and abrupt. As in melancholia, the course of an attack of mania is not always uniform, but is sometimes intermittent.

The duration of an attack of mania is, in a first attack, about two, three, or four months, though, as in melancholia, it may be much longer. Other things equal, it is shorter the more severe the attack. On the whole, the rule obtains that a manic attack is shorter than one of melancholia.

Diagnosis.—The diagnosis of mania offers no special difficulties. The character of the attack, the absence of hallucina-

tions and delusions, and the relatively high degree of lucidity serve to differentiate it from delirium. The milder cases can with equal ease be differentiated from the expansive form of paresis, by the absence of the physical signs so characteristic of the latter affection.

Prognosis.—The prognosis is, as in melancholia, favorable as regards the individual attack, in the majority of cases. Death from exhaustion, accident, or visceral complications may, however, occur. Like its congener, mania is an affection which is essentially recurrent. The intervals between attacks sometimes extend over a few months, more frequently over several years. Sometimes the attacks are few and far between, as in a patient of the writer, in whom two attacks were observed with an interval of ten years. Such long intervals are, however, distinctly the exception. For a further consideration of this subject, the reader is referred to the paragraphs on the prognosis of manic-depressive insanity at the close of the present chapter.

HYPOMANIA

Like melancholia, mania does not always present itself in the form here pictured, but may occur in a subacute form, a form termed hypomania. Occasionally mania does not rise to a higher level than a persistent "manic" excitement; that is, the disturbance, while possessing the essential features of mania, never equals in intensity the acute form. In its way, it is the opposite of the subacute form of melancholia, hypomelancholia.

Hypomania forms a well-marked clinical entity; however, there are transitional forms between it and mania proper; sometimes it is a prelude to the latter. Very often, too, it is clearly but a phase of circular insanity, and there can be no doubt as to the position which it should occupy in our nosology.

Symptoms and Course.—The onset of an attack of hypomania is probably always preceded by a depressive phase in which elements of a melancholia are more or less discernible. The expansive mental state is gradually established. The same emotional and intellectual exaltation, the same or similar vagaries in conduct may be early observed until the manic state becomes marked. The excitement, however, is relatively limited, the altitude of the wave is decidedly lower than in mania proper. There is the same objective and emissive attitude of mind; there is the same restlessness. Association, as before, is abnormally increased, and is usually odd and striking; though, owing to the lessened degree of excitement, this symptom is not so pronounced. It may, however, give an appearance of originality and brilliancy to the patient's speech; he may seem witty or humorous, or, it may be, impudent or ironical.

In spite of the general mental exaltation, the thoughts may follow each other in orderly sequence, but they do so with abnormal rapidity; occasionally the patient passes abruptly from one theme to another. He expresses himself with ease, replies quickly, and may indulge in repartée. His memory is active, he recalls events readily. However, if he is questioned much, he loses patience, does not answer, becomes involved, and perhaps a little incoherent. Occasionally, too, gaps occur in which sentences are broken; speech cannot keep pace with the speed with which the ideas flow, and a condition then results which reminds us of mania proper, but is far less marked. The abnormal psychic activity is also shown in other ways. The patient engages in or proposes various ambitious projects, business enterprises, inventions, or scientific or literary undertakings out of all proportion to his resources; he shows no appreciation of the obstacles in his path. It does not neces-

sarily follow that his schemes, his inventions, his poems, are devoid of value. Usually, however, they reveal grave defects of judgment.

The patient's feelings and moral sense, as already stated, are less acute. He is apt to neglect his family, he no longer manifests for them the same affection as formerly; often he reserves his ill humor and fits of anger for the home circle. To strangers he may appear as a person of agreeable manners until he offends by his egotism, fatigues by his loquacity, alienates by his ill-considered conduct. His moral sense, too, is suspended; he may give free play to his sexual instincts, may lose all reserve, may drink to excess, may commit acts openly which compromise his reputation. Women, also, frequently betray marked sexual excitement. Their eroticism may reveal itself in wearing striking apparel, in audacious advances, in open solicitation, in making violent love to any man who happens to be near, irrespective of his age, fitness, or social position. Sometimes engagements to marry are entered into; sometimes, too, the unfortunate patient becomes pregnant.

In hypomania, as in mania proper, the memory may be much exalted; in many cases remarkable hypermnesia is present. The patient recalls historical events and dates and other matters with great accuracy or quotes word for word from books—sometimes whole pages—which he has not read for many years, and of which, in his normal condition, he can usually recall little or nothing. The patient may also observe his surroundings with abnormal minuteness, and may subsequently give a remarkably detailed and accurate account of all that occurred during his illness. One of my patients dictated to a stenographer the detailed daily events occurring shortly preceding his illness, including his arrest and subsequent commitment, and covering the entire period of his stay at the asylum, extending

over many months of time. As happens not infrequently, in cases of hypomania, the patient claimed that he had been improperly committed. He entered suit against his physicians, and, among other things, maintained that the fact that he remembered everything pertaining to his alleged insanity, in such minute detail, was *prima facie* evidence that he had been sane throughout. It need hardly be added that, abandoned early by his attorney, his suit came to naught. In another instance of hypomania, a woman who was in a condition of extreme eroticism, and had committed flaring acts of solicitation, was as a last resort committed to an asylum. She communicated by letter with the mayor of the city and with a prominent attorney, alleging that she was being illegally restrained of her liberty. Her case was promptly taken up, but after a time both mayor and attorney were convinced that she was insane. Meanwhile, both friends and physicians were subjected to considerable annoyance; she was, notwithstanding, held at the asylum until the manic wave had subsided, and publicity—and what was to the relatives scandal and disgrace—was avoided.

It is a remarkable fact that sexual elements play an especially prominent part when the hypomanic wave occurs as the middle period of life is approached; *e. g.*, in the early forties. The recrudescence of sexual feeling may be very marked and may constitute the most striking symptom of the case, the general manic features being relatively less prominent. For instance, a woman who has been absolutely chaste both in thought and conduct and apparently happily married for years, complains to her physician that her husband is not as attentive as formerly, that he does not satisfy her sexually, that he is indifferent or incompetent, while she herself is perfectly healthy and in various ways intimates or broadly states that both her desires and her

capacities are very great. It is but a step farther for such a woman to fall in love. Not infrequently it is with some one much younger than herself; intrigues, gross breaches of conduct, scandal and elopement may follow. At times the patient falls in love with some one whom she has greatly admired, it may be her minister, physician or other person whom she has frequently met. In such case, her advances, often open and unconcealed, sometimes accompanied by frank avowals, cause no small embarrassment to the persons concerned. Sometimes the patient, in order, it would seem, to satisfy her scruples and to be in keeping with her previous life, may give to the affection a platonic coloring.

I know of no cases more difficult of management than cases of hypomania. Advice and admonition are alike rejected; attempts at control are resented as unwarranted interference by both men and women. Sometimes vague ideas of persecution make their appearance and may lead to acts of violence. When commitment to an asylum is finally the only way out, lawyers and physicians are alike appealed to by the patient, and so great is the apparent lucidity that attorneys will always be found—and for that matter, unfortunately, physicians also—who will take up the supposed cause of the patient. That under these circumstances great harm may ensue to the patient and to his best interests may well be imagined.

In hypomania, as in ordinary mania, the clothing of the patient may be disarranged or dishevelled. Especially is this apt to be the case if the excitement is pronounced, approximates that of mania proper, or is of long duration. Sometimes in such instances the patient may put on his clothing in a grotesque manner, turn his coat inside out, thrust his trousers into his stockings, tear off his buttons, and, very curiously, may make finger-rings or bracelets out of pieces of string or

yarn. Often, too, he collects and puts into his pockets the most miscellaneous objects, such as fragments of bread, stumps of cigars, dried leaves, strings, pieces of paper, fragments of rags, pieces of glass, or nails. Sometimes he scatters or arranges such objects about his room, or stuffs hair, rags, or dirt into his nose or ears.

Physical signs are absent in hypomania as in mania proper. Sometimes there is a slight tremor of the hands; at other times, due to the hurried speech, the patient betrays a faulty enunciation; never, however, the atactic speech of paresis.

Neither the digestive tract nor the circulatory apparatus reveal special symptoms. The appetite is good, but the weight is usually below normal.

The course is like that of ordinary mania, in so far as it is wave-like, though the altitude of the wave, as already stated, is much lower. Again, the duration of an attack of hypomania is much longer; eight months, a year, a year and a half, two years, or more. The subsidence is usually gradual. In some cases it would seem that the condition never entirely disappears; such individuals, it would seem, are somewhat "manic" all of their lives. (See Part II, Chapter III.) However, in the majority of cases the patient becomes normal for a time, but only to suffer later—perhaps soon, perhaps after months or years—from another attack, or perhaps from an attack of melancholia.

Diagnosis.—The diagnosis is, as a rule, made without difficulty. The expansion, the emissive and objective attitude, the anomalies of association, the absence of hallucinations and delusions, and the relatively high degree of lucidity leave no room for doubt. A differentiation from paresis is made by the absence of physical signs and from the expansive stage of para-

noia by the absence of the systematized delusions and other cognate symptoms unnecessary to detail here. A serological examination is usually unnecessary; though in cases at all doubtful, it should be made and should include both the blood and the cerebrospinal fluid. (See section on Paresis.)

Prognosis.—The prognosis as regards the outcome of the individual attack is, on the whole, favorable, though less so than in the acute form.

CIRCULAR INSANITY

Circular insanity, periodic insanity, insanity of double form, is characterized by an alternate succession of attacks of melancholia and mania.

Two widely different phases present themselves, into the detailed consideration of which it is unnecessary to enter again. As may be inferred from the sections on melancholia and mania, the transition from one phase to the other may be direct; *i. e.*, without any appreciable interval, or there may be an interval during which the patient is normal or relatively so. The direct transition is perhaps more frequently observed. If there be an interval, this is usually of uncertain length. The two phases form a cycle. Further, they may alternate with each other in various ways; thus, an acute attack of melancholia may be followed by an acute attack of mania, the duration of the first phase being, we will say, four months, that of the second three; the waves being of equal altitude, the melancholic wave is somewhat longer than the manic. Again, a hypomelancholia may alternate with a hypomania. However, almost every order of succession has been observed; *e. g.*, a hypomelancholia may precede an acute attack of mania, perhaps intense in degree, or an acute attack of melancholia may be followed by a mild and prolonged wave of hypomania. In

other words, there may be no correspondence whatever in the altitude or duration of the opposite phases.

As already stated, the two phases constitute a cycle. Very rarely, it is said, such a cycle may occur only once in the lifetime of an individual. However, the truth doubtless is that such an observation is merely incomplete and takes no note of mild melancholic and manic waves that have occurred previous to or since the frank attack.

A cycle may embrace a number of months, a year, a year and a half, or longer. It may at once be followed by another cycle, and this by a third, and so on. In other words, the patient may suffer from a continuous circular insanity. Again, and this is the more frequent as it is also the less distressing form, the various cycles are separated from each other by a period during which the patient is normal or relatively so. This period may be short, but not infrequently it is prolonged and extends over several years. Further, the successive cycles may bear a general resemblance to each other, both as to severity and duration; sometimes, indeed, they are very much alike; less frequently they vary decidedly. When the succeeding phases are short—when the cycle itself is short—the interval is apt to be lacking. It should be added, also, that the manic phase may be the first in the series; *i. e.*, the first to which attention is given. There is reason, however, to believe, as already shown, that it is always preceded by a depressive phase.

Finally, cases present themselves, though infrequently, in which depression and expansion alternate at very brief intervals; for example, on succeeding days, or, it may be, change between night and morning; or in which elements of depression and expansion are present during various periods of the same day.

Such cases have been described as the "mixed" form and are in the larger number of instances to be observed during the period of transition from one phase to another; for instance, during the subsidence of a melancholia and the, as yet, incompletely established phase of a mania.

THE PROGNOSIS OF MANIC-DEPRESSIVE INSANITY IN GENERAL

General Conclusions.—The following facts, already pointed out, may be considered as established: First, the prognosis of an individual attack of melancholia or of mania is good; *i. e.*, the patient, other things equal, is likely to recover from the attack. Especially is this true of the attacks that occur in early life. As regards the melancholic phase, we have among the most favorable indications the typical and acute character of the attack, the absence of stupor, and the absence of marked disturbances of nutrition. As regards the manic phase, the outlook is again more favorable in proportion to the frank character of the attack and the moderate degree of the exhaustion.

The subject, however, presents itself in another and far more serious aspect. Clinical experience has shown that the attacks of both melancholia and mania recur. Isolated attacks are excessively rare. Second, phases of melancholia may be succeeded by phases of mania and vice versa. Third, while manic-depressive insanity is, to all intents and purposes, *one* affection, one in which both the melancholic and the manic phases occur, these two phases do not, by any means, occur with equal frequency. Thus, it is undoubtedly a fact that typical acute mania occurs much less frequently than typical acute melancholia. Further, an increasing experience shows that, in cases which appear at first sight to be merely recurring

attacks of melancholia with normal periods intervening, these intervals are very frequently periods of mild manic elation; notwithstanding, they do not constitute well-developed attacks of mania, perhaps are at most an approach to hypomania. Finally, cases of melancholia are time and again met with in which the patient must be regarded as entirely normal in the intervals, intervals which sometimes extend over many months and years. The fact remains, let us repeat, that acute mania occurs much less frequently than acute melancholia.

Again, as regards the manic attacks themselves, clinical experience justifies another generalization; namely, that they occur more frequently and with greater intensity in early life than later. Acute manias, as we have already pointed out, have their first onset most frequently in the third decade of life; they recur subsequently, but they recur with a diminishing frequency and diminishing intensity, and become quite rare as the middle period of life is approached.

As regards melancholia, clinical experience appears to justify the following generalizations: First, frequently, in the attacks which occur early in life, it happens that, while the general symptoms, psychic suffering, self-accusation, tendency to suicide, are present in great force, a highly evolved special delusion of the unpardonable sin, such as is met with in later attacks, may not be present. The detailed picture of first attacks may differ in this respect from second or third attacks, and more particularly from the melancholia of middle life. Second, somatic delusions, *i.e.*, delusions hypochondriacal in type, are more frequently met with in the older cases than in the younger, and reach their typical development in the melancholia of middle life. Third, a review of the clinical findings also justifies the inference that recurring attacks of melancholia tend to increase in duration; *i.e.*, each successive attack is, other things equal,

somewhat longer than the preceding attacks. While there are exceptions to this rule, it is in the main correct. Certain it is that attacks occurring in middle life are much more prolonged than attacks occurring in early life.

Further, it has been with the writer an almost unvarying experience that when a melancholia occurs in middle life—*i. e.*, is said to have begun in middle life—a careful study of the personal history will show that in reality the attack from which the patient suffers is not a first attack. If the life history of the individual be carefully studied from early youth on, it will frequently be found that he has suffered from periods of depression previously; not pronounced, perhaps, but nevertheless existent, and often to the degree of attracting the attention of members of the family. Not infrequently I have unearthed clear histories of waves of depression recurring at intervals and of many months' duration. Sometimes the history reveals instead, and in a most surprising way, a clear history of repeated periods of long sustained and abnormal activity, embracing great enterprises and projects, each period brought to an end, achievement frustrated, by a period of ill-health, a "breakdown." Sometimes the history of recurring phases of manic activity brought to light in a case of melancholia of middle life is most striking. In one of my patients enormous business success ensued during these periods, with lack of progress and indifference in the intervals. Such a history is most suggestive, and clearly proves that the middle-age melancholia, which is perhaps the first attack which leads the family physician to call in a specialist, is by no means the first attack of the affection from which the patient has suffered. The early life of my patient was clearly featured by hypomanic states, interlarded perhaps with states of depression relatively insignificant. The writer believes that the more the phases of

depression or of expansion occurring in a life history are studied, the more will the conclusion be justified that, whether occurring early or late in life, they belong to one and the same symptom group, and that violence is done in attempting to separate out a special clinical form for middle life, a so-called melancholia of involution. Again, a manic state is sometimes found in middle life, either interlarded between phases of depression or existing perhaps as a well-defined hypomanic wave; as witness the hyperactivity, excitement, and eroticism sometimes met with in women in the early forties, women some of whom subsequently develop a middle-age melancholia. Sometimes, indeed, this manic wave burns with a fierce brilliancy; it is rare, but it does occur. The writer once had under his care and observation, at one and the same time, two sisters, one of whom, aged forty-six, was suffering from a typical long-drawn melancholia of middle life, while the other, two years her junior, was confined in a neighboring asylum with a typical attack of mania. Like the melancholia, the mania was of long duration and unpromising.

Manic-depressive insanity may persist during the lifetime of the patient; rarely the attacks cease to recur. Sometimes they come to an end with one or two prolonged attacks of melancholia in middle life. In other cases, again, the attacks continue to recur, become chronic, or, perhaps in the form of phases of hypomelancholia, persist into old age. Occasionally it is just in old age that profound waves of melancholia occur—profound and persistent—and yet even here recoveries may ensue.

Another important question remains to be considered. Clinical experience has shown that patients pass through manic and depressive attacks without suffering any mental deterioration. When the phase has subsided, the patient presents

no evidence of loss or impairment of any of his faculties. This fact is one of the most striking in all the varied phenomena presented by mental disease. When recovery ensues it is complete. However, like many another general truth, it is not absolute; there are a certain number, a very small number, of exceptions. First, as already stated in regard to melancholia, the attacks tend to increase in duration, both with recurrence and with increasing age. Second, to this it must now be added that the prognosis of individual attacks becomes less assured as middle age is approached and least so when middle age is reached; that is, there is a distinct tendency to the prolongation of the attack over an increasing period of time. Again, recovery is now and then clearly not complete; there is a distinct and persistent residual mental impairment. Finally, an attack of melancholia occasionally extends over three, four, or more years; if so it is to be fairly regarded as chronic and as offering but little hope of improvement; the writer has, however, seen an excellent recovery in a woman suffering from a middle-age melancholia after four years. At times, the mental impairment that ensues in chronic cases amounts to a true dementia, a so-called secondary or terminal dementia; sometimes this is spoken of, though improperly, as a secondary paranoia. There may be a persistence of depressive delusions, sometimes vague, sometimes clearly outlined. The delusions may become more or less fixed, and may resemble those of a paranoia. They may consist of ideas of ill treatment, abuse, and even persecution. Not infrequently they are accompanied by visceral and other hallucinations. In time they are likely to undergo degeneration, to become grotesque, absurd, hypochondriacal. The appearance of a paranoid attitude in the course of a melancholia is always, it should be emphasized, an unfavorable sign. In states terminal to mania an analogous

picture may be presented; there may be an indefinite persistence of symptoms and of ambitious or expansive ideas poorly arranged, with mental impairment.

In former years the diagnosis of chronic melancholia and chronic mania and of terminal dementia, the outcome of these affections, was much more common than at present, but this was doubtless owing, in many instances, to the failure to properly differentiate melancholia and mania from the excitements and depressions met with in the members of the heboid-paranoid group.

In regard to the pathology of melancholia-mania little that is definite can be said. The mental states suggest the influence of a toxin—possibly an autotoxin. However, an examination of the serum of the blood has failed to reveal the presence of any defensive ferments. Such ferments, as will be pointed out again, have been found in dementia *præcox*, both against the sex glands and against the cortex; but in manic-depressive insanity neither Fauser nor others who have investigated this field have ever found defensive ferments of any kind, and the investigations have included the sex glands, the thyroid, the pituitary, pineal, suprarenals, muscle, liver, kidney, cortex and other tissues. It would seem that in manic-depressive insanity a coarse dysfunction of the cortex is not present, but rather that there is an excessive or an insufficient production of some normal secretion, against which a defensive ferment is not formed. In other words, in manic-depressive insanity the toxicity appears to be due to a quantitative rather than to a qualitative change in substances normally present. To appreciate the significance of this fact, we must bear in mind, that substances present in excess or abnormally deficient have all the force of poisons. Of this truth the familiar instances of hyper- and hypothyroidism offer striking examples.

In any event, whatever the disturbing cause, it must be endogenous; of this there can be no doubt, for manic-depressive insanity bears no relation to infectious processes or other poisonings of extraneous source. It has sometimes been attempted to refer the affection to gastro-intestinal auto-intoxication, but the gastro-intestinal atony is itself an outcome of the disease, a symptom of defective innervation; treatment directed to the digestive tract has uniformly failed to modify the progress of the symptoms in the slightest degree. Finally, theories have also been formed ascribing a psychogenic origin to melancholia and mania, but such theories are clearly inapplicable in an affection which is essentially hereditary and innately neuropathic.

CHAPTER V

GROUP III.—THE HEBOID-PARANOID AFFECTIONS (*Dementia Praecox; Paranoia*)

THE group considered in the present chapter consists, as already indicated in Chapter II, of affections essentially degenerative in their nature. It would seem that we have here to deal with individuals who are defective in their organization, with persons who have had transmitted to them from their ancestors a structure so imperfectly or so aberrantly constituted that it breaks down under the mere strain of living. The breakdown may occur early or relatively early, and it then presents itself in the form of an insanity of youth, a so-called precocious dementia; or, the breakdown may not occur until adult life has been reached, when it presents itself in the form of a delusional insanity, a so-called paranoia. Inasmuch, therefore, as this group includes both juvenile and paranoid insanity, I have for some years applied to it the designation of the heboid-paranoid group. This group, as we will see, forms a natural whole, though composed of a number of clinical forms. The term heboid-paranoid is not only in a sense descriptive, but serves to distinguish it clearly from the other groups.

All observers are agreed as to the large proportion of hereditary factors. These are variously estimated at from 52 per cent. by Schott, to 90 per cent. by Zablocka. The wide variation in the percentages of different observers is probably due to differences of view as to what should be included, first, in the general term of hereditary factors, and, secondly, as to what affections should be included in the general

conception of dementia praecox. Kraepelin at one time found hereditary predisposition to mental diseases in 70 per cent. of his cases, though he thinks that this may possibly have been too high. He states that when the inquiry was limited to the direct heredity, *i. e.*, to the occurrence of mental disease, suicide, or severe brain affections in the parents, it yielded 33.7 per cent., which he again regards as too low. No matter how we approach the subject, however, the facts justify the general conclusion as to the relative frequency of neuropathic family histories in dementia praecox. In such family histories, we should note all departures from the normal; not only crass instances of mental disease, but also the occurrence of eccentric or unusual personalities, criminals, prostitutes, tramps, vagabonds, misfits, and failures generally. It is significant in this connection to note the varied character of the facts presented by the ancestry as compared with the relatively limited and definite character of such findings in manic-depressive insanity.

It is further significant that every now and then dementia praecox occurs in a number of individuals in the same family. Kraepelin states that he knows a large number of such instances. Personally I have knowledge of one family in which no fewer than five individuals suffered from this disease. Dementia praecox is only infrequently directly transmitted from parent to child, as the great mass of cases develop before parenthood is established. This statement must, of course, be modified in so far as we include the paranoid, that is, the older cases—under the general caption of dementia praecox. Further, not only are instances of dementia praecox met with in the same family, but other neuropathic affections as well, such as epilepsy and hysteria, and at times also, though infrequently, manic-depressive insanity.

Rudin, from studies made of Kraepelin's material, comes to the conclusion that dementia praecox is probably transmitted

in accordance with the Mendelian law and appears as a recessive quality. In favor of this view he regards the marked predominance of the collateral and discontinuous inheritance over the direct inheritance, the increase of dementia *præcox* resulting from inbreeding, and the numerical relation of those attacked to those remaining normal. He found in the families which he studied also other affections, namely, manic-depressive insanity and eccentric personalities, and further that it was not at all infrequent for manic-depressive parents to produce children with dementia *præcox*, while the reverse—namely, manic-depressive children from dementia *præcox* parents—belonged to the rare exception. Granting the possible transmission of dementia *præcox* in accordance with the Mendelian law, it is also evident that other factors which directly and grossly affect the vitality and development of the organism variously play a rôle. For instance, Rüdin noted that late born or last born children suffered more frequently from dementia *præcox* than others; again, that immediately preceding or following the birth of a *præcox* patient there was frequently a history of miscarriage, premature birth, or stillbirth. Of equal significance are the physical and psychic stigmata of deviation and arrest that are found in individuals who acquire dementia *præcox*. Saiz states that the frequency of the occurrence of the physical stigmata is 75 per cent. Among the latter are physical feeble-mindedness, retardation of growth, a too prolonged juvenile appearance, malformations of the skull, deep and narrow palate, persistence of the intermaxillary bone, abnormalities of the ears, fingers, or toes, imperfections and anomalies of the teeth, and allied peculiarities.

Facts such as the foregoing indicate that in given instances the germ plasm has suffered from impairments that affect its general morphologic and biologic properties and which have profoundly altered and lowered its possibilities of growth and

development. Among causes which may thus grossly impair the germ plasm, we have reason to believe, are infections and intoxications affecting the parent. Pilcz, Klutscheff, and others have published suggestive statistics as to the frequency of syphilis in the parents. That syphilis may play a rôle is extremely probable on other grounds. The fact that the Wassermann reaction is found in a not inconsiderable proportion of dementia præcox cases, *e. g.*, by Bahr in 32.1 per cent., is of extreme significance. Such findings do not mean that the patients are suffering from a disease of the nervous system due to inherited syphilis, but that the organism as a whole has been hampered, made deviate and degenerate in its development by the presence of the spirochete and its toxins; *i. e.*, that the evolution of the organism as a whole—and included in this the development of its glands of internal secretion—has been so inhibited and altered that at a given point in its life the organism breaks down by reason of an abnormal and toxic metabolism. The clinical evidences of inherited syphilis are absent in the great mass of dementia præcox cases, and it is not necessary that the Wassermann or other tests should yield a positive result; it is sufficient that the infection has damaged the germ plasm of the parent.

Again, that alcohol likewise damages the germ plasm hardly admits of doubt. Diem, Fuhrmann, Rüdin, Wolfsohn, and others have published studies, alike suggestive and significant, on the alcoholism of parents in dementia præcox. Whether other poisons and intoxications play a rôle in bringing about damage to the germ plasm, we are obviously unable to say, but such action is neither impossible nor improbable. In any event, however, it must be vastly less important than the action of syphilis or of alcohol.

It seems justifiable to assume, first, that the germ plasm in dementia præcox may be laden with a direct tendency to the development of dementia præcox, a tendency which may

possibly, as Rüdin believes, be transmitted as a recessive quality in conformity with Mendelian principles; secondly, the germ plasm may suffer from a gross impairment the result of syphilis, alcohol or more rarely of other infections or intoxications. The first cause may be operative without the second; both causes may be operative together. That the second cause may be operative alone seems extremely probable. *Dementia præcox* can hardly be regarded as a specific clinical entity in the same sense as manic-depressive insanity, but rather as a group of mental affections all of which present the one common factor of endogenous deterioration.

The various members of this group have long been recognized. It appears that the insanities occurring in the juvenile period were known, imperfectly it is true, to Pinel, to Spurzheim, and Esquirol. Thus the latter speaks of children who are very well at birth, who increase in stature at the same time that their intelligence develops, and who are very sensitive, lively, irritable, passionate, and possessed of a brilliant imagination, a developed intelligence, and an active spirit; this activity not being in relation to the physical strength, these creatures use themselves up, they rapidly exhaust themselves, the intelligence becomes stationary, they acquire nothing more, the hopes to which they have given rise vanish, while they finally pass into a terminal period of dementia. Surely we have here a picture which strongly suggests the modern conception of a juvenile dementia. Morel, in his treatise on mental diseases, describes cases which clearly belong to the simple form of the juvenile insanities, and, in commenting upon them, he says that an immobilization of all of the faculties, *une démence précoce*, indicates that the young subjects have reached the termination of the intellectual lives of which they are capable. They live intellectually only up to a certain age, after which arrest takes place, and they fall progressively into

a state which he can only compare to idiocy. Morel was the first to use the expression precocious dementia, and it was Arnold Pick, who, in describing cases belonging to this group, first used its Latin equivalent, *dementia præcox*.

Kahlbaum early differentiated (1863, 1874) two forms, which he named respectively hebephrenia and catatonia, and later Hecker (1877) also made a study of the first form, hebephrenia. While these observers were succeeded by numerous others, it was reserved for Kraepelin to recognize, not only the relation between these two affections, but also their relation to the various forms of paranoid dementia. He thus achieved a brilliant generalization, one that has served to greatly reduce the difficulty of study and classification.

The cases of the heboid-paranoid group roughly separate themselves into two subgroups; first, the juvenile insanities, and, second, the paranoid dementias of the adults. This does not imply, however, that these two subgroups are not closely related. It is to *dementia præcox* that we will first give our attention.

INSANITY OF ADOLESCENCE, DEMENTIA PRAECOX

As stated above, Kahlbaum early differentiated two forms, which he named hebephrenia and catatonia. Kraepelin, while recognizing the distinction, realized that it was not possible to separate these two forms sharply from one another, a point of view which is now universally shared, and he applied the term *dementia præcox*, already introduced by French writers, to both conditions, a position in which he has also been generally followed.

Further, there can be no doubt that hebephrenia and catatonia are not only closely related symptom groups, but that they are also related to cases in which the symptoms resemble

or suggest those of a delusional lunacy; *i. e.*, paranoia. It is wise, therefore, to include under the designation, dementia præcox, not only hebephrenia and catatonia, but also a paranoia-like juvenile insanity, a paranoid dementia. Kraepelin is disposed to include under the last-mentioned term also a large group of adult cases, which the writer believes, in common with others, had best be classified under paranoia itself. Having disposed of these preliminary considerations, let us turn our attention to dementia præcox in general.

The onset of a juvenile insanity may take place at any period between puberty and early adult life. The greater number of cases occur between fourteen and twenty-five, perhaps between sixteen and twenty-three years of age. However, the age, as may well be imagined, is a variable factor; and this is not surprising when we reflect that in some of these patients, due to a delayed development, youth occurs late and is prolonged into what would otherwise constitute adult life; in others, again, puberty, youth, or the adult period all come on too early. The question of age will again be touched upon in discussing the group as a whole.

Dementia præcox is said to be somewhat more frequent in males, and with this my own experience appears to be in accord. The fact, if true, is difficult of explanation.

There are no incidental factors of etiology; thus, neither infections nor traumata play any rôle.

Symptoms and Course.—The general features of a dementia præcox may be outlined as follows: first, a gradually beginning onset of mental symptoms, usually of the character of a confusion, but sometimes possessing elements of systematization; second, there is present in the early period of the affection depression, hypochondriasis, exhaustion, and in the later period expansion; third, in the great majority of cases the affection

is progressive, the mental impairment steadily increases and terminates in dementia.

It is usually impossible to fix the time when the affection begins, so slow and insidious is the onset. Frequently the initial symptoms are passed by or no attention is paid to them. Most often, however, a stage can be recognized in which the child, or rather youth, becomes mentally readily fatigued; there is an inability to do mental work; there is headache, insomnia; ideas of bodily illness make their appearance; the child feels ill, complains of being ill, is clearly hypochondriacal; restlessness, irritability, change of disposition are noted. The child is unable to do its work at school as before; is unable to take in new ideas, to elaborate or properly coördinate them. Frequently such a child is chided for being lazy. He is inattentive, indifferent, lacks interest, is depressed. Sometimes he plays truant; sometimes he runs away from home.

Soon more decided mental changes are noted. It is observed that the patient is slow and heavy mentally, that speech and thought are alike inhibited, disconnected, disordered. Sometimes the speech is suppressed altogether and the patient is mute. If he talks, it is found that he is delusional; his delusions, however, are transient, changing, fragmentary, feebly systematized, or not systematized at all. They are painful and depressive in character and are referred to causes outside of the patient. Sometimes the delusions consist merely of ill-defined notions and feelings; at other times they are very vivid and characterized by ideas of suffering, torture, poisoning, burning, mutilation. Quite commonly they are present in such number as to dominate the picture, and they indicate more or less clearly the reference by the patient of his sufferings to agencies without; *i. e.*, to agencies in the external world. In the older patients, ideas of persecution are elaborated, sometimes vague, sometimes well defined. That the patient, under

these circumstances, may manifest fright, run away, or may, on the other hand, strike, commit assault, is not surprising. Sometimes, though rarely, the patient evinces ideas of crime, sin, or misdeeds, but they are an indirect outgrowth of his ideas of persecution. At most they are fragmentary and ill-defined, and we never see, as in melancholia, clearly defined self-accusation, ideas of moral unworthiness, or the typical delusion of the unpardonable sin. The importance of this distinction cannot be sufficiently emphasized. A failure to recognize it clearly may lead at times to errors of diagnosis.

In keeping with the character of the delusions, hallucinations also are found in the majority of cases. Sometimes they are very numerous. Hallucinations of hearing are the most frequent, but hallucinations of the other special senses and of the general somatic sense may also be present. In cases that pursue a relatively quiet course they may not be striking or prominent. Illusions, also, may manifest themselves, though they do not, as a rule, play a very important rôle.

The depression of the early period varies greatly in different cases both in degree and in the character of the symptoms. In some patients, in addition to the other mental features already considered, it may be characterized merely by an absence of spontaneity, by apathy and emotional indifference; usually, however, it is marked, and quite commonly it is long continued. It may be interspersed by agitation, and the patient may in such case become noisy and much disturbed. Sometimes the depression is very profound, and it may gradually deepen until the patient passes into a condition of stupor, a stupor that may be complete and may endure for many weeks or months.

The mode of transition from the depressive to the expansive period may be gradual, and indeed this appears to be most frequent. The depressive ideas become less prominent and ex-

pansive ideas take their place; or it may be that during an interval depressive and expansive ideas are, as it were, commingled, first one group and then the other being more prominent until the expansive stage is finally established. Sometimes the transition from one stage to the other is rapid, sometimes even sudden and abrupt, a fact which we will presently consider again.

The change from the period of depression to the period of expansion is seen most typically in the paranoid cases; *i. e.*, in the older patients. However, both depressive and expansive phases are presented by the younger patients, the cases of hebephrenia and catatonia as well. Hecker long ago showed this to be the case for hebephrenia, and clinical experience, it may be safely claimed, shows the same to be true for catatonia. The slowly oncoming mental change, it would appear, is accompanied by depression to which expansion sooner or later succeeds. The histories of cases are, it must be admitted, often unsatisfactory as regards the early stage, and it, therefore, happens that now and then a clearly marked depressive phase seems to be lacking. I am quite sure, however, that this is due to the faulty observation or absence of observation by relatives and others at a time when the patient is still without medical care; that this is likely to be the case when the depressive period is relatively mild and short can readily be imagined. Sometimes, also, attention is attracted to the patient in the first stage, not by the slowly on-coming symptoms of ill-health, but by some sudden or striking occurrence, such as a convulsive seizure. Indeed, epileptiform convulsions are, in rare cases, looked upon as ushering in the disease; the truth doubtless is that, just as in paresis, the disease has pre-existed, and that the onset of convulsions has served merely to call attention to its existence. Sometimes the convulsions are repeated;

at other times the patient suffers from fainting spells, sudden attacks of exhaustion, or even from rapidly occurring attacks of stupor.

Further, the oncoming of the expansive stage may be long delayed, and indeed nonexistent during the time that the patient is under medical observation; or, it may be, the degree of mental impairment having become pronounced, the phase of expansion may be evidenced not so much by ideas as by conduct. However this may be, it may, I think, be safely claimed that the generalization as to the initial depression, subsequent expansion, and general mental failure holds good, and, as we will see later, not only for dementia *præcox* but for all of the members of the heboid-paranoid group.

The phases of depression and expansion extend over a variable period of time, from several months to several years. Finally, the disturbed period subsides, and the patient is left with a mental impairment which may be very pronounced, moderate, or slight in degree; indeed, in a limited number of cases it may be so little marked, or even absent to such an extent as to justify the opinion that the patient has recovered. The question of recovery will again be considered later, but let us emphasize here that a high degree of recovery, enduring and persistent, is distinctly the exception. Further, and this is the most important point to bear in mind, that, after a period of improvement has in a given case ensued, there is not infrequently, after the lapse of months, sometimes of several years, another onset of a delusional and excited period, after which the mental impairment becomes more evident; indeed, there may be several such recurrences after each of which the dementia becomes more pronounced. Notwithstanding, however, after all is said and done, we must not forget that there are cases in which the outcome is not so disastrous; cases which

are mild, in which there are no recurrences, and in which the final result must be looked upon as a recovery.

The delusions of the expansive period, it should be added, like those of the depressive period, are, on the whole, ill-defined, frequently changing, fragmentary, and not at all or poorly systematized. They may in various degrees be accompanied by excitement and exaltation, and may betray ideas of self-importance or consequence; quite commonly they have an ambitious, a religious, or a political content. Quite commonly, too, they are puerile to a degree; indeed, it may be said with truth, that they betray an intellectual enfeeblement somewhat more advanced than that of the depressive period. The language is in keeping with the mental state. It is exalted and bizarre, perhaps turgid, pompous, or declamatory. Its expressions are excessive; it is filled with misplaced phrases that have no connection, with trivial words, or with words or sounds that have no meaning.

As may be inferred from what has been said, various anomalies of association, of the emotions and other features are present; however, clinical simplicity and clearness will best be served by deferring the psychologic interpretation of the symptoms until a later portion of this volume is reached. (See Part III.) For our immediate purposes, the mental state is best interpreted as a confusion which in some cases—*i. e.*, in the older or paranoid forms—reveals an approach to systematization. There are present, in general terms, the elements of a confusional insanity—*i. e.*, unsystematized, fragmentary, and unrelated delusive ideas together with hallucinations—a symptom group which suggests, to say the least, a toxic agency.

This confusional insanity, however, because of the period of life at which it appears, because of the mode of onset, and probably because of the nature of the dementing process itself, presents special features. Thus, it is hardly surprising that

the delusions evolved should be unsystematized and but poorly arranged when we consider the immature condition of the mind of the child at puberty and early youth, especially in dementia praecox, in which there is often a history of delayed and defective establishment of puberty. Pickett some years ago showed by statistical studies, made at the Insane Department of the Philadelphia General Hospital, that the average age of the paranoid cases was greater than that of the catatonic cases, and that the catatonic cases were somewhat older than the hebephrenics. In keeping with these facts, the tendency to systematization is least evident in the hebephrenics, slightly more evident in the catatonics, and most developed in the paranoid cases.

The mode of onset, especially when the latter pursues the more common gradual course, permits of the preservation for a longer or shorter period of a relatively high degree of lucidity; this lucidity becomes impaired in proportion as disturbed and hallucinatory states, on the one hand, or stuporous states, on the other, are established. During this relative lucidity, perception is good; illusions, as already pointed out, are infrequent, often altogether absent. It is not surprising, therefore, that under these circumstances orientation should be well preserved; the patient correctly appreciates and correctly correlates himself with his surroundings.

In keeping with the above facts are also the facts of memory. Memory is good, well preserved, indeed, for the period preceding the onset. It may be fairly good for events during the early stage, and, like the lucidity and orientation, may show impairment or loss only during and for the periods of the disturbed or stuporous states. Of course, in the stage of terminal impairment, if such be the outcome, the memory suffers along with the other faculties.

Again, as already stated, the child, as the affection makes

itself manifest, ceases to be able to acquire new facts, or is not able to properly coördinate them with those already acquired. It is not surprising that the judgment of the patient, especially in regard to new experiences, becomes impaired. If the depression of function, if the stand-still of mental progress continues, the child ceases to comprehend properly and uniformly. Its mental reactions and its will become impaired. Emotional indifference and apathy, already mentioned, make their appearance, as does also indifference to the surroundings. There is under these conditions—conditions probably of exhaustion and intoxication—a loss both of the will and the power to perform the daily tasks. For the same reason the self-control, the inhibition, is lessened or lost, and impulses born of the delusive ideas may be given free vent. Sometimes under these conditions the patient may become much disturbed, violent, noisy, destructive, and even dangerous. Sometimes, too, he may attempt to injure himself or to commit suicide.

As the affection progresses the patient may, as already stated, become more and more quiet, talk less and less, or finally become mute. A stuporous state may supervene which resembles simple stupor, or it may be accompanied by automatism, the patient remaining in positions in which he happens to be placed, or he assumes spontaneously fixed positions with rigidity, a catatonia making its appearance.

At times automatism at command is present, the patient walking, standing still, or performing other simple acts very much as a person under hypnosis. At other times a condition of negation is developed—"negativism" as it is called. The patient, instead of complying with an instruction, performs exactly the opposite act; thus, if told to walk forward, he may walk backward; if told to stand up he may sit down, and vice versa. Again, sometimes, when the effort is made to change

the position of the patient, marked resistance is encountered. If a limb happens to be held extended or flexed and the effort is made to change it from one position to the other, the muscles resist, and as soon as the hands of the physician are removed the limb resumes its former position. The positions and attitudes may involve not only the limbs, but the trunk and head as well; not infrequently they are bizarre. Patients often lie in the bed, with the head drawn upon the chest, the eyes closed, the limbs flexed, or in other fixed positions, giving vent to no word or sound, resisting the taking of food, and retaining both urine and feces. Every now and then such a picture of immobility is broken in upon by an activity apparently as purposeless as it is sudden. Occasionally the patient repeats the same movements or group of movements many times; he rocks to and fro, repeats the same gestures, makes the same movements with the hands or taps upon the wall or bed. Just as there may be stereotyped positions, so may there be stereotypy of movements. In catatonia, the patient may repeat the same word or words, the same phrase or sentence—often without meaning or apparently senseless—continuously for hours, then presenting the symptom termed verbigeration.

At other times, the patient's restlessness finds its vent in grotesque and extravagant capers. The patient jumps up and down, claps his hands, bounds about the room, rolls about the bed, tosses hither and thither. It would seem that the motor excitement here presented is the outcome of a sheer physical exuberance and is probably the expression of an expansive phase. At times, again, the restlessness finds its vent in a bizarre, silly, outlandish, or clownish conduct. Frequently, too, the patient makes grimaces, snuffles, clicks his tongue, or makes other curious sounds. Often he smiles or laughs causelessly. Like the grimaces, the laughter seems to bear no rela-

tion to any corresponding emotion. It is in keeping with other expressions and gestures which seem to bear either no, or a perverted, relation to the mental content. They appear to be groups of associated movements, the result of the spontaneous emission of impulses which are uninhibited.

Cases of dementia *præcox* manifest their increasing mental deterioration in various ways. Early in the affection they manifest neglect and indifference to their persons; as the disease progresses, they manifest a loss of the finer feelings, aesthetic qualities, shame, sympathy, affection for their relatives. Their habits degenerate; they eat voraciously, noisily, and without proper use of table utensils. Later they become unclean and filthy in their habits; they may, as do other demented patients, soil the bed or clothing, urinate upon the floor, smear the fecal matter upon the hands or person, or even introduce it into the mouth, nose, or ears. Masturbation is also a common feature.

The physical signs of dementia *præcox*, in addition to the motor phenomena already considered, are not numerous. In the early stages, station and gait are not altered; there is no tremor; the tendon reflexes may show no change, save that at times they are exaggerated. The pupils are frequently much dilated, especially in the stages of excitement. They appear throughout to be larger than normal. Sometimes the pupils undergo remarkable and sudden changes in diameter. Inequality of the pupils does not seem to occur. Disturbances of the light reflex, if present, are insignificant—Bumke is under the impression that in catatonics the pupillary contraction comes on more suddenly and disappears more suddenly than normally. He does not, however, regard the symptom as of value, and does not venture to say that the light reflex is regularly exaggerated. Reaction to accommodation is undisturbed.

However, a condition which Bumke would regard as typical for dementia præcox is the absence of the psychic reflex; *i. e.*, the movements of the iris in response to the play of concepts and emotions; also the reduction of the pupillary motility and the absence of dilatation to sensory stimulation. These conditions appear to obtain in cases already long established, and in which there are present psychic enfeeblement and more or less general deterioration.

Sleep is, as a rule, much disturbed, especially during the period of evolution. The appetite is usually diminished at first, though later on it may be increased and even excessive. There are present quite frequently the signs of an atonic indigestion with constipation; at other times these features are absent. The circulation is quite commonly depressed; often we find the surface cool, the extremities cold and livid, the features dusky, the pulse rate increased; on the other hand, as in the case of the digestive tract, no symptoms of moment may be noted. Among special features, it should be added, we observe in dementia præcox, with a suggestive frequency, enlargement of the thyroid gland. The body weight is, as a rule, decidedly below normal.

As the reader may have inferred, the pictures presented by individual cases of dementia præcox vary greatly; that they, however, present an underlying uniformity and identity is equally clear, and the general description of periods of depression and expansion, with confusion and deterioration, must be regarded as fairly applicable to all. The recurrence of a cycle of depression and expansion after an interval of improvement, especially if this interval be short so that an expansive wave is more or less closely antecedent to a depressive wave, may give rise to the incorrect inference that the expansive wave was first in the order of sequence; especially may this be the case

when the initial period of the disease has not been under observation. The more the writer has studied the subject, the more he has become convinced of the correctness of Hecker's original interpretation.

As was pointed out in the beginning of this chapter, and repeatedly called to mind in our general consideration of the subject, dementia *præcox* embraces hebephrenia, catatonia, and paranoid dementia. These forms, while closely related, present, notwithstanding, special clinical features. We will first turn our attention to hebephrenia.

DISTINGUISHING FEATURES OF THE SIMPLE OR HEBEPHRENIC FORM

The symptomatology of dementia *præcox*, as a whole, having been already considered in some detail, it is necessary only to point out briefly the special features appertaining to hebephrenia. To begin, in hebephrenia the symptoms of dementia *præcox* are generalized in type; the characteristics of the more differentiated forms, catatonia and paranoid dementia, are lacking; *i. e.*, there are absent, more or less markedly on the one hand, the special motor phenomena—the fixation, resistance, negativism, and verbigeration—of catatonia, and, on the other, the systematized delusions of paranoid dementia.

Second, as is well known, and as was shown statistically by Pickett, hebephrenia is the form met with among the younger patients; *i. e.*, the youngest group of all. Consequently, and, as might perhaps be justly inferred, the degrees of the emotional departures from the normal are less marked than in catatonia and paranoid dementia. In other words, the depth of the depressive wave is apt to be decidedly less than in the other forms, and this is equally true of the height of the wave of expansion. Sometimes the initial period is characterized

merely by a sense of illness, of hypochondriasis, the child complaining of headache, dizziness, obscure bodily distress and sleeplessness, and manifesting a depression relatively moderate in degree. It is more frequently, too, in hebephrenia that the initial period escapes observation, which would hardly be the case if it were pronounced. Again, the expansive phase, while relatively more marked than the depressive phase, may manifest itself more by exuberant and boisterous conduct than by expansive delusions. As a rule, however, both the initial wave of depression and the subsequent wave of expansion are clearly marked, though less so, on the whole, than in the other forms.

Third, the delusive ideas are in hebephrenia wholly un-systematized, fragmentary, changeable, and transitory. In this particular the contrast is most marked with the paranoid form. Doubtless here, among other factors, the question of age comes into play; the more mature the mind, the more the delusions tend to assume a logical sequence, a logical structure.

Because of the generalized type of hebephrenia, I believe it is quite proper to speak of it as the *simple form* of dementia præcox. Notwithstanding, Kahlbaum's original designation derived from hebe ($\eta\beta\eta$), puberty, and phren ($\varphi\rho\eta\nu$), the mind, is of the very greatest value, because it accentuates the fact of the early age of the patient.

DISTINGUISHING FEATURES OF THE CATATONIC FORM

Catatonia is distinguished by the fact that to the general symptoms of dementia præcox, already considered, there are added definite motor phenomena, spasms, fixed attitudes, stereotyped postures, automatism, negativism, verbigeration, stupor. Catatonia, according to Pickett's statistical observations, occurs in a group somewhat older than the hebephrenics. In keeping with this fact, we find a well-marked initial wave of

depression and a well-marked wave of expansion. The delusions are, as in hebephrenia, unsystematized, unfixed, varying, changeable, disappearing. Now and then clearly marked paranoid references are met with; thus, the patient tells us that people are hearing his thoughts, people are talking about him, are talking of things he has done, that he is to be punished, executed, etc. A true paranoid structure is, however, not observed.

The name catatonia, like the word hebephrenia, is an exceedingly valuable and well-chosen one; it is derived from catasteino (*καταστένω*), I stretch tightly, and clearly conveys the idea of the distinguishing feature of the affection.

DISTINGUISHING FEATURES OF THE PARANOID FORM

Dementia paranoides, a term first introduced by Kraepelin, is especially applicable to the third form of dementia præcox. It presents the general symptom group of dementia præcox, and, in addition, is characterized by the fact that the delusions present distinct evidences of systematization, although this systematization is comparatively feeble. There is never, indeed, the well developed logical arrangement of paranoia. The affection is ushered in by a preliminary period of depression, weakness, general fatigue, headache, and sleeplessness. Very soon the patient becomes actively disturbed. He is restless, agitated, suspicious, and delusional. People are watching him, talking about him, he is in danger, he is about to be poisoned, is threatened with torture, fire, murder. At the same time, painful auditory hallucinations manifest themselves; there may also be hallucinations of vision and of the other special senses. Delusions of persecution, in part confused and disordered, in part coöordinated and systematized, now dominate the picture. The hallucinations and delusions alike

are painful, and the patient clearly and definitely refers his sufferings to agencies in the external world. Sometimes ideas of crime, misdeeds, or transgression on the part of the patient make their appearance, but they serve only to explain his persecution. Similarly, the ideas sometimes have a hypochondriacal basis, and the patient believes that he is persecuted because he has some terrible illness, some dreadful deformity. That, in his efforts to escape his persecution, he may now and then attempt suicide is not surprising, but much more frequently the paranoid dement is dangerous to others, sometimes exceedingly so. Assaults upon the persons about them—relatives, friends, attendants—are common occurrences.

After a time, variable in duration, and usually not very long—weeks or months—it is noted that the patient is becoming expansive, and this change is gradually more and more marked. The patient becomes talkative, boastful, believes himself to be a person of consequence; sometimes claims, as in paranoia itself, that he is not the person he is supposed to be, that he has suffered substitution in the cradle, that he is of noble or of royal birth, that he is very powerful, omniscient, a great discoverer, a great inventor, or perhaps that he has a mission to perform, a revelation from the Deity to communicate. The various delusions seem to follow without relation to each other. Apparently they are based haphazard upon the hallucinations and upon the misinterpreted sense impressions. A word, a gesture, a fancied resemblance, is enough to give rise to the most phantastic train of ideas. Perhaps it is just because they are varied and multiple that the delusions lack the coördination seen in paranoia. However, as in the latter affection, the patient may find in his grandeur and greatness the explanation of his persecution. Again, as might be expected, the delusions lack the fixation of paranoia; the trend

of the ideas, however, continues to be the same, and this persists during the disturbed period of the affection. Occasionally, though rarely, hallucinations appear to be absent or are very slightly marked; in such cases the delusions appear to be evolved from illusions of sense, from gross misinterpretation of things seen, heard, or read, just as in certain forms of paranoia. They do not differ from delusions which have their basis in hallucinations; they are alike varied and multiple. In by far the greater number of cases, however, hallucinations are present, the auditory, as already indicated, predominating; when visual hallucinations are prominent, the delusions, as in the case of paranoia, are apt to deal with mystic ideas and subjects.

The course of dementia paranoides is, in general terms, like that of the other forms; *i. e.*, a depressive period, an expansive period, together with a progressive mental impairment. Its close relations with the other forms of dementia *præcox* is shown, not only by its course and general symptomatology, but also by the not infrequent occurrence of catatonic phenomena, such as fixed positions and resistive and even stuporous states. Further, it bears equally close relations to the paranoias, and occupies, as it were, a median position in the series of affections comprising the heboid-paranoid group. It may, with perfect propriety, be spoken of as "heboid paranoia."

It is sometimes difficult to obtain a clear history of the period of depression in dementia paranoides, probably because the patient has not been under competent observation, and also because this period is at times relatively short. At the time the patient comes under institution observation, expansive ideas may have already made their appearance, and the false impression may be gained that the expansive phase is the first

phase of the attack. Again, the patient may be in a stage of transition and persecutory and expansive ideas may both be present; one group and at times another may be more prominent. The course, too, is sometimes quite irregular. Finally, the course is at times relatively rapid; particularly may this be true of the period of evolution. It is this fact which has led the French writers to describe the affection under such names as "délires systématisés aigus" and "délires systématisés d'emblée" (Magnan), while the Germans have applied to it such expressions as "acute Verrücktheit," "acuter Wahnsinn" (Schüle), "paranoia acuta" (Mendel, Schüle). All of these expressions imply a symptom group which, both in its development and progress, is much more rapid than that seen in paranoia; indeed, there is a distinct contrast in this respect between paranoid dementia and paranoia, the course of which is of course essentially chronic. The reader must not, however, infer that the evolution of paranoid dementia is sudden, for this is not the case; it is always gradual. There is always a preliminary period of illness and depression—often long before the symptoms become so striking as to attract lay attention. Again, the fact that simple active confusion (Verwirrtheit, Amentia, see p. 49) has at times been mistaken for this form of mental disease has still further lent color to the idea of rapidity of onset and course.

General Considerations; Prognosis, and Conclusions.—
The conception of dementia præcox, which I have endeavored to outline in the preceding pages, is that of an organism which has its beginnings in a germ plasm defective and abnormal and the subsequent development of which is necessarily imperfect and deviate. This means that the organism as a whole is involved. This fact must be inferred also from the presence of such evidences of morphologic deviation as are visible to clinical

observation; these merely imply that other and fundamental deviations are present in the organism throughout. Such an organism must present not only abnormalities of its structure, but also abnormalities of function and especially of its metabolism. Various facts point to anomalies of the internal secretions. For instance, it is not infrequently noted, as already stated, that the thyroid gland varies in size from the normal; frequently it is unusually small, though occasionally enlarged. Autopsies have shown (Dercum and Ellis) that it is frequently only half the normal weight, while the adrenals are frequently double the normal weight. The rôle that other glands, especially the thymus, may play in dementia *præcox*, has been pointed out by Sajous; the function of the thymus in the general development of the organism attains here a special significance in view of the fact of morphologic arrest and deviation. The occurrence of osteomalacia in dementia *præcox* as noted by Barbo and Haberkandl must also be borne in mind. It is extremely probable, that the entire chain of ductless glands may participate. Clinically, our attention is strongly attracted to the sex glands. There are the anomalies of menstruation, the delayed and imperfect establishment of puberty on the one hand, or of sexual precocity on the other. Again, there is the history of sexual excesses, sexual vagaries, and perversions. A relation to the sex glands is further indicated by the accentuation of symptoms often observed during a menstrual epoch and by the fact that dementia *præcox* now and then has its incidence in a pregnancy or in repeated pregnancies, or in a miscarriage, as though sex-gland exhaustion played a rôle. Tisch, Lomer, and Kraepelin have all assigned importance to the sex glands. Lomer particularly indicated a disturbance of the internal secretion of the latter, but it remained for Fauser to throw an especially illuminating light upon the subject. It would appear

from Fauser's investigations that in dementia praecox unchanged sex gland protein—an abnormal internal secretion of the sex gland—enters the blood, and that in the subsequent breaking up of this protein, substances—defensive ferments—are formed which are poisonous to cortical tissue and which bring about the destruction, the lysis, of the latter. Fauser's results have been confirmed by a large number of other investigators. Whatever the future may reveal, there is no escape from the conclusion that in dementia praecox there is a deranged metabolism, an autotoxic state, in which abnormalities of the internal secretions play a dominant rôle; that the internal secretions of the sex glands are especially involved is extremely probable.

The prognosis of dementia praecox is, as may be inferred, on the whole unfavorable. However, the following facts, which modify sometimes in a slight degree, sometimes in a great degree the eventual outcome, must be borne in mind. First, the patient may pass through an attack, with its phases of depression and expansion and the other attendant mental phenomena, without presenting at the end of the attack any recognizable mental impairment. This is distinctly the exception, but it does occur. However, an increasing clinical experience has shown that the cases in which recovery had been believed to have taken place quite frequently suffer a recurrence of symptoms, sometimes after a number of months, sometimes after several years, and that after such recurrence the mental deterioration is usually pronounced. This truth applies not only to hebephrenia, but to catatonia and paranoid dementia as well. It was for a long time thought that the cases of paranoid dementia, or acute paranoia (*délires systématisés aigus*), as they were earlier called, not infrequently terminated in recovery. Particularly was this the view of the French writers, who believed that a favorable outcome was quite common. However, the

fact of repeated recurrences, each attended by unmistakable and increasing mental deterioration, has demonstrated that paranoid dementia is no exception to the rule, and, as in the other forms, a terminal period of dementia with some persistence of delusions and confusion finally supervenes.

One must not, however, go too far in such a generalization as the above. Cases are met with in which recurrences are not observed, or, if occurring, finally cease to make their appearance. For example, a young man of nineteen passed through a typical attack of hebephrenia. His case was relatively mild, and, with the aid of competent nurses, rest, and physiologic measures, was treated successfully outside of the asylum, the entire attack lasting something less than a year. He was apparently entirely well. Two years later he entered upon a business enterprise, married, and conducted himself in an apparently normal manner. However, after the lapse of another year, it was found that he was not giving the necessary attention to his affairs, and soon that they were badly neglected. It was again recognized that he was not well, and he was, as before, brought under medical observation. Soon persecutory ideas, ideas of danger, of harm to himself and others, became manifest, and before long the patient became violently disturbed. His condition was so much worse than during the previous attack that commitment to an asylum became necessary. Here he remained for some eighteen months, when he again appeared to have recovered. The "recovery" still exists, although ten years have elapsed. However, in order that the story should be completed, it must be added, that he has never re-entered business; that he has never taken up any occupation; that, though apparently rational and lucid, he spends his time in idleness, in dawdling, and in trifling pastimes, reads little or none, is indifferent and inactive, and also headstrong, obstinate,

wilful, and unreasonable. Such a case can hardly be looked upon as one of recovery. Further, other symptoms later appearing strongly suggest that the patient is passing into a confirmed paranoid attitude.

In other words, a case of dementia præcox may recover, but the recovery, as already stated, is rarely complete. Quite commonly, even in the most favorable cases, some evidences of mental deterioration—deterioration of general mental make-up, efficiency, and character—are noted. It must be confessed that sometimes these are very slight and perhaps non-existent, but this is certainly the great exception. Mental impairment is ordinarily left in a recognizable degree; quite commonly this impairment is decided, so that a partial or incomplete recovery results. In other cases again, and indeed the larger number, the mental loss is profound and the final result is one of a terminal and persistent dementia. There may for a long time be some persistence of confusion and delusions and of other mental phenomena, but finally even these disappear.

Recovery in a case of dementia præcox, even when approximating the normal level, should be looked upon with doubt. Quite frequently such a supposed recovery is merely a period of more or less prolonged remission. It is true that all alienists can recall cases of recoveries without subsequent recurrences. One such case was studied by myself many years ago; the boy, a lad of fourteen, passed through a typical and pronounced hebephrenic attack which terminated in recovery, a recovery which was incomplete. Now an adult in the late twenties, he is unreliable, untruthful, without sense of responsibility, grossly incompetent in business, without self-restraint, and given to alcoholic excesses. Quite commonly, in so-called cases of recovery, the patient passes out of observation, and we are limited to the rather unsatisfactory account of friends and relatives, or the case is definitely lost to view.

Having laid emphasis upon the unfavorable aspects of the subject, let us now turn our attention to such facts as offer some encouragement. It is found, in the first place, that cases of catatonia offer a distinctly more favorable outlook than the other forms. Kraepelin's observations lead him to state that the percentage of recoveries is about 8 per cent. in hebephrenia and about 20 per cent. in catatonia. While my own experience in regard to recoverable cases would place the figures somewhat higher than this, it all depends upon what is meant by a recovery. Kraepelin himself places the percentage of recoveries with impairment much higher. The practical fact for us, however, remains that quite a number of cases get well, most frequently with some traces or evidences of permanent damage. The second question that confronts us is, is there any way in which a favorable outcome can be foretold? Unfortunately the answer that can be returned to such a question is not very satisfactory. However, it may be said that, in addition to the more favorable outlook presented by catatonic cases, we have, first, the relative mildness or severity of the attack. If the attack be mild, so mild, for instance, that the patient can be cared for outside of an institution, simple rest in bed, with full or massive feeding, bathing, massage, exercise, and other physiologic methods, will often yield surprising results. The circumstances of the patient, his ability to secure detailed and elaborate care, are, therefore, factors of moment. Under any conditions, however, and, as might have been anticipated, the less severe the attack, other things equal, the more favorable the outcome. Secondly, there is the relative acuteness of onset and course. Cases that pursue an acute and active course presage, other things equal, a lesser duration, and, therefore, a lessened danger of permanent change. In cases of slow and relatively chronic course the danger of mental de-

terioration, by the time the attack is over, is, other things equal, greater. Third, the age of the patient is also important. Relative early age or youth is proportionately favorable. Unfortunately attacks of dementia *præcox* do not always occur in youth. Sometimes a hebephrenia does not set in until the third decade of life is well advanced; similarly, a catatonia may not put in an appearance until the late thirties or even forties are reached. Cases of late hebephrenia and of late catatonia offer a relatively unfavorable prognosis; duration is especially prolonged—often many years—and the final outcome is quite commonly that of marked and persistent deterioration.

In regard both to late hebephrenia and late catatonia, the writer is convinced that the attack observed is frequently not the first attack of mental disturbance from which the patient has suffered; not rarely a careful study of the patient's early history reveals attacks variously diagnosticated as nervous prostration, hypochondriasis, hysteria, neurasthenia, lasting often a year or more. The inference is justified that the attack observed is in reality a recurrence, a recurrence frank and pronounced, but, because it is a recurrence, less promising as regards the outcome. Finally, I am convinced that an early and perhaps improperly diagnosticated attack of hebephrenia may recur years later as a catatonia; the diagnosis then of a "late" catatonia is made. It cannot be sufficiently emphasized that late attacks of dementia *præcox*, no matter of which form, offer an unfavorable outlook, both as regards duration and final recovery.

The prognosis of paranoid dementia is deserving of a final word. Its duration extends over months and years; *i. e.*, the periods of depression and expansion may be completed in the course of several months or a year or two, but the patient

is left in a condition of persistent and more or less marked mental impairment. The more rapid the onset and the more acute the course, the shorter, other things equal, the attack. Again, the attack does not always, nor necessarily, imply a subsequent impairment or dementia. Indeed, the patient, as in the other forms of dementia *præcox*, may make a recovery. Unfortunately, just as in the other forms, there is a well-marked tendency to recurrence; months, more frequently several years, after the first attack another may make its appearance. This is apt to be followed by evidences of deterioration more or less marked. Subsequent attacks emphasize the damage, or the affection may assume a chronic form. Repeated attacks are disposed to be of increasing duration. Finally, in the recurrences the periods of depression and expansion may not be clearly outlined; persecutory and expansive ideas may be commingled, or the expansive phase may even present the fallacious appearance of preceding the depressive.

There can be no doubt that the French observers were correct in regard to recovery from a first attack. It is the unfortunate fact of recurrence that militates against persistent and eventual recovery. As in the other forms of dementia *præcox*, we are governed by the severity and the acuteness of the attack, and, to a somewhat lesser extent, by the factor of age. Two additional and important facts must also be borne in mind; first, the more the picture resembles merely an active confusion, and the less marked the tendency to systematization, the more favorable, other things equal, the outlook; second, the presence of anything suggesting persistence or fixation of delusions is distinctly unfavorable. Finally, it should be repeated that cases are not wanting—cases usually of a subacute course—which, though beginning as paranoid dementia, and probably passing through a series of

recurrences, gradually pass into a chronic form and eventuate as a paranoia hallucinatoria. This transition is infrequent, but there is no good reason to doubt its occurrence. It has been denied by Krafft-Ebing and by Magnan, but has been affirmed by Mendel, Westphal, Schüle, Legrain, and others. There is here a link of transition between the paranoid form of dementia *præcox* and the paranoias. In other words, just as hebephrenia, catatonia, and paranoid dementia are related to each other, so is the paranoid form related to the remaining members of the heboid-paranoid group.

In conclusion it is hardly necessary to point out that the clinical pictures presented by individual cases of dementia *præcox* vary greatly. Kraepelin has distinguished no less than ten forms; thus, a form characterized by simple dementia; secondly, a form characterized by impairment with silliness; thirdly, by impairment with depression and it may be stupor; fourth, impairment with depression and delusions; fifth, a circular form; sixth, an agitated form; seventh, a periodic form; eighth, catatonia; ninth, the paranoid forms, and finally a form characterized especially by confusion of speech. Kraepelin, however, prefaces the descriptions which he gives by the statement that between the various forms there are so many transitional forms that they cannot be sharply delimited. He regards them merely as more frequently recurring pictures and does not ascribe to them a higher clinical value. Detailed clinical studies will add greatly to our knowledge, but it may be safely stated that the original grouping into the hebephrenic, the catatonic, and the paranoid forms may be considered as established.

PARANOIA

French writers, under the term "délires systématisés chroniques," have described a mental affection which, in contrast to the "délires systématisés aigus" (paranoid dementia), is

of slow evolution, runs a chronic course, and is characterized by a logical, an orderly, arrangement of the delusive beliefs; *i. e.*, by systematization of the delusions. Our knowledge of this subject is of gradual growth, and the original observations of Lasèque (1852), Morel (1860), Falret père (1864), Falret fils (1878), and others were no less epoch-making than the studies of Kahlbaum and Hecker in hebephrenia and catatonia. In England it was more particularly Savage who first clearly grasped the subject, terming the affection delusional insanity. Among the Germans it was Westphal, and later Krafft-Ebing and Schüle, who differentiated the symptom complex; unfortunately, they employed the rather ill-defined words "Verrücktheit" and "Wahnsinn" in describing it, terms which led subsequently to much confusion. It was here that Mendel rendered a signal service to psychiatry. The word paranoia (*παράνοια*) was used by Aristotle, Plato, Aeschylus, and doubtless by other writers, in the sense of derangement, madness, folly, obstinacy, perversity. It resolves itself into the two roots *παρα*, beyond, and *νοος*, mind. It found its way into German literature late in the eighteenth century (1764), when Vogel applied it rather indefinitely to what was apparently melancholia and mania. Later Heinroth (1818) described, under the term paranoia, a condition of "lack of freedom of mind with exaggerated obstinacy in conception and judgment." It was Mendel who first gave to the word a definite application, and it quickly replaced its predecessors, Verrücktheit and Wahnsinn, and became synonymous with the *délire systématisé* of the French and the delusional lunacy of the English writers. It is now a term generally accepted as meaning insanity with systematized delusions and chronic in course. Among the older terms, now displaced, may be mentioned monomania and partial insanity, both of them expressions based upon erroneous conceptions of the affection.

As may be anticipated, delusional lunacy or paranoia manifests itself in a number of ways. The various forms can, however, be conveniently grouped under two heads: first, a form in which the delusions are intimately associated with hallucinations, and, second, a form in which the delusions are evolved independently of or in the absence of hallucinations. Roughly speaking, paranoia resolves itself into a hallucinatory and a non-hallucinatory form.

There has been a tendency for some years past, following the lead of Kraepelin, to greatly restrict the use of the word paranoia. Under the general caption of paranoia, Kraepelin at first embraced both of the above forms. The first, in which the delusive beliefs apparently arose independently of hallucinations and seemed to be formed by the combination of actual sense impressions, he termed the "combinatorische" form; the second, in which the delusions apparently arose in association with hallucinations, he termed the "phantastic" form. Later he placed this phantastic form under the caption of dementia praecox, now calling it a "second" form of paranoid dementia. Later still, in the eighth edition of his Psychiatry, he again removed it from under the caption of dementia praecox and gave it an independent position in his nosology. He now gave it the name "paraphrenia." Unfortunately, however, paraphrenia has exactly the same meaning as paranoia and suffers the further disadvantage of being an artificially made word. In the opinion of the writer, the affection should unhesitatingly be included under the general caption of paranoia, being best characterized as the "hallucinatory" form. Further, between it and the so-called non-hallucinatory form, there are close relationships; as will become apparent later. While individual cases vary, the underlying features are always the same, and the writer believes that alienists would do well to retain the word paranoia in the original signification in which Mendel

first employed it. It stands for a definite thing; namely, systematized delusional lunacy.

In general terms, paranoia differs from the other members of the group thus far considered, as follows: first, its delusions are systematized, *i. e.*, they have a clearly marked logical structure, are logically arranged and coördinated; second, the affection is of exceedingly slow evolution and course; third, it is an affection of adult life. As before, there is an initial period of depression, but this period, instead of extending over a number of months only or perhaps a year or so, now extends over many years. As before, there is a transition to an expansive period. The transition is, for the most part, gradual, and is often spoken of as "the transformation of the personality." The subsequent period of expansion, like the period of depression, is also of many years' duration. Paranoia is, therefore, practically a life-long disease. Finally, like the other members of this group of affections, its progress is attended by a gradual deterioration, an increasing dementia. In some cases, more especially of the hallucinatory form, the progress may be interrupted, though rarely, by remissions or partial remissions of symptoms, these remissions giving way later to recurrences, just as in the other members of the heboid-paranoid group. Again, in many cases, the dementing change progresses steadily and even obviously rapidly; in others, especially in the non-hallucinatory form, the deterioration often takes place with exceeding slowness. Finally, as might be expected, in some cases, the patient remains in the period of depression—often spoken of as the period of persecution—during the entire time that he is under observation, the expansive period never being reached.

In paranoia the general truth, already pointed out in the beginning of this chapter in regard to the rôle of heredity, finds its full expression. Hereditary factors are here the order of

the day, and 85 or 90 per cent. is probably a moderate estimate. That the patient has had transmitted to him or is the victim of a defective and aberrant organization may also be evidenced by the presence of gross morphologic arrests and deviations. Such morphologic features occur in paranoiacs with suggestive frequency. Sometimes the skull presents a markedly flattened occiput; sometimes it is oxycephalic, strikingly asymmetric, or presents some other abnormal trait. It may be that the trunk, the limbs, or the digits reveal peculiarities; perhaps in relative development; perhaps in the presence of feminine characteristics in male patients, or of masculine characteristics in female patients. Gross anomalies of structure, of course, justify the inference that the organism, as a whole, has deviated from the normal, and even when gross anomalies of structure are not evident this inference may be justified on other grounds. Frequently patients who subsequently develop paranoia betray already in their childhood and youth striking peculiarities of conduct. They may be unduly quiet and reserved, abnormally shy, and suspicious. They remain apart from their comrades, do not mix in the play of other children, form few attachments, have no friends. Often they are morbidly sensitive, introspective, self-conscious. Later, as they pass through the period of youth, they reveal the same characters and, it may be, in a more marked degree; they keep to themselves, are distant, diffident, taciturn, proud, egotistic, at least always occupied with themselves. That a history of a morbid childhood and youth cannot be obtained in every case need hardly be stated. When a history is possible, however, a patient and detailed inquiry usually reveals significant facts. At any rate the facts of heredity, morphologic peculiarities, and aberrant childhood and youth justify the view that the tendency to the later oncoming paranoid degeneration in adult life is already present in the individual at his birth. In keeping with this idea, it is

significant that paranoia is somewhat more frequent in persons born out of wedlock, probably because women bearing bastards are likely themselves to be degenerate. That public women and prostitutes generally are in large percentage subnormal, and that many others who lead irregular sexual lives are likewise to be classed among the defectives, needs hardly to be pointed out. Again, the very fact of the bastard's anomalous position favors the attitude of mind so frequently seen in the early lives of paranoid subjects. Finally, paranoia is somewhat more frequent among the unmarried, among those whose lives differ from the rest of the community in that they are denied the fulfilment of function resulting from marriage and parenthood. The traits of the paranoid subject are such as frequently not to favor marriage, and the fact of living alone favors the evolution of the paranoid view of life. There can be no doubt, however, that both bastardy and celibacy are factors of moment only in the lives of those who are predisposed; *i. e.*, in those in whose nervous make-up the degeneration leading to the future paranoia is inherent. It is sometimes said that great disappointments, reverses, neglect, wounded pride, unhappy marriage, play a rôle in the etiology. Evidently such a rôle must be subsidiary to the one great factor of the paranoid predisposition.

Paranoia occurs in many forms, and, as already pointed out, these can be roughly grouped under two heads: first, the common hallucinatory form, and, second, the non-hallucinatory form. It is to the hallucinatory form that we will now turn our attention.

PARANOIA HALLUCINATORIA

Symptomatology and Course.—The common or hallucinatory form of paranoia, though presenting itself in a variety of ways, merits the following general description: Because of the ex-

tremely gradual appearance of the symptoms it is impossible to fix more than approximately the period of onset. However, an individual who has previously attracted attention as being odd and eccentric, or who has been observed to be morbidly reserved, reticent, and peculiar, perhaps suspicious and unsociable, enters upon a period of depression and of hypochondriasis. He begins to suffer from various obscure visceral sensations. These appear at first to be but slightly pronounced; they may be vague, faint, or only occasional in occurrence. Later they may be more insistent, unpleasant, and distressing. The patient refers them to the head, the body, the genitals. There are fulness or emptiness of the head, sensations of pressure or constriction, headache, buzzing in the ears, distress in the praecordia, palpitation, unpleasant, painful, or strange sensations in the stomach or bowels, or, it may be, throbbing or other queer feelings in the genitals. These sensations are clearly hallucinatory, and belong to the group of the visceral and the general somatic hallucinations. The patient apparently suffers from these hallucinations for a long time before he speaks of them. Morbidly reserved and suspicious, he is apt to repress the impulse to complain until his sufferings become insistent. Sooner or later he begins to seek an explanation of his troubles in causes external to himself. Sooner or later he comes to believe that his sufferings have been imposed on him from without. Everything that he hears or sees begins to have some relation with himself. The simplest facts acquire a special significance, the most natural happenings have a sinister meaning. Everything about him is changed. People look at him, whisper about him, talk about him as he passes. Everything that is said, everything that is done, has a special significance for him; everything is interpreted by him as being intended for him. People dislike him, regard him with aversion, threaten him with harm. Words, tone of voice, gestures alike,

are inimical and insulting. Little by little the patient comes to the conclusion that he has long been an object of animosity. The most trivial events of the past, of childhood and school, of home and daily life, furnish convincing proof that his interpretation is correct.

If the patient be studied at this time, it will be found that special sense hallucinations have also made their appearance. In the great majority of cases they are of hearing; at least, auditory hallucinations are the most prominent. Hallucinations of vision are relatively rare. On the other hand, hallucinations of smell and taste are not infrequent, and this is also the case with hallucinations referred to the general body surface and to the genitals.

The hallucinations of hearing, like the other symptoms presented by paranoia, are of gradual evolution. Just when they begin it is of course difficult to say. Doubtless in some cases they begin early and account for the buzzing and other distressing sensations of which patients in the early stage of the disease complain, though these sounds may, it is true, at times be explained as ordinary tinnitus. However, clinical observations show that the sounds first heard are frequently described by the patient as humming, buzzing, roaring, or are compared to the ringing of bells; sometimes they are described as strange noises or as sudden explosions; one patient described them as pistol shots and interwove them with his delusions. In the well-developed period of the affection the auditory hallucinations assume the form of words, usually of vile, profane, obscene names, of curses, reproaches, threats. That the patient refers these sounds to the street, to the open window, to the walls, to the ceiling, is but natural. Sometimes short phrases are heard and these constantly repeated: "kill him, kill him," "serves him right, serves him right." Sometimes in this con-

dition illusions of sound play a vivid rôle, as when the ticking of a clock, the foot-falls of a passing stranger, or the rattle of a wagon constitute a recurring tirade of curses and revilings.

That under these circumstances delusions also are present need hardly be pointed out. At first the patient has a vague and general idea that his sufferings, his tortures, his torments, are caused by others; "they," "people," are annoying him, persecuting him. Gradually a notion of conspiracy is evolved, "they" have conspired to injure, to poison, to electrify, to kill him. Later, or, it may be, in some cases early, a certain group of persons is selected as constituting the conspiracy; thus, it may be the relatives, the neighbors, the servants, the business associates, or it may be a special organization, religious or social, the police, or the government. Sometimes the conspiracy includes everybody, and everything they see or hear is directed against them. The delusions are, as has already been pointed out in the general consideration of the subject, systematized. They are logical, well arranged, and well coördinated.

Quite commonly the delusions assume specific and detailed features, and which recur in various patients with great frequency. Thus the patient believes that there are holes in the wall, through which his enemies hurl insults and curses, or through which they throw poisonous or foul-smelling vapors or gases or other harmful substances. Quite frequently he believes that the house is wired, that it is filled with speaking tubes, that everywhere there are telephones, that the telegraph wires which pass his window convey to his room taunts, vile names, threats from his enemies; or nowadays it may be the wireless, electricity, the phonograph of which his enemies make use. The hallucinations may become more detailed, more vivid, more complicated. The patient may recognize the voice of a special person, or it may be that he clearly distinguishes the voices of several persons whom he knows. At other times

the hallucinations appear as an echo of the patient's own thoughts; the latter are repeated aloud into his ears as fast as they are formed. It may be, too, that the patient may refer a different set of hallucinations to each ear respectively. At other times the patient refers the voices to his stomach, to his throat, to his head, or to some other part of his body. That he may, under such circumstances, acquire notions of double personality, or of his body being "possessed" by some one other than himself, can be readily understood. Sometimes he believes that some one other than himself is talking through his mouth, and he may even move his lips or tongue, as in the act of articulation, though not uttering any sounds.

General somatic and visceral hallucinations which, as we have seen, are in the beginning vague, and give rise merely to notions of illness, to hypochondriacal ideas, become gradually better defined and acquire a more distinctly objective character. The patient feels touches, blows, burns, cramps, spasms; his flesh is pinched, pierced, electrified; his bowels dragged and twisted; his head, his eyes, his teeth, wrenched, seared, torn. Especially noteworthy, too, may be the genital hallucinations. Women are outraged, painfully abused, their genitals torn by instruments, have intercourse night and day. Men are masturbated, sodomized, tortured, castrated.

Hallucinations of smell and taste also occur with great frequency. The patient smells disagreeable odors, foul vapors, horrible stenches. These come to him through holes in the wall, through the door, the window, and all are the work of his enemies. At the same time, his tongue is the seat of tastes strange, disgusting, vile, and horrible; and that he believes his food and his drink to be poisoned is but a natural sequence. Delusions of poisoning are exceedingly common, and are apt to be among the most important factors determining the conduct of the patient.

Hallucinations of vision during the persecutory period of ordinary paranoia are rare. However, they may occur, and are then like the other hallucinations painful and distressing. The patient may have terrifying visions; he may see gross, misshapen figures or men and women of frightful mien and threatening gesture. Sometimes it is especially his persecutor whom he sees. One of my patients, a man of some education and an artist, had a frequently recurring visual hallucination which he called the "Opaluma." It was a female figure robed in "opalescence," and whenever it appeared he became greatly excited and believed himself to be in great danger. Careful investigation revealed that the vision was that of a female relative who frequently wore a pink dress and upon whom he had centered as being the source of all his suffering. In order to rid himself of the dreadful presence he adopted a novel expedient. He carried with him a bottle containing some putrefying organic matter—apparently a decomposing broth or soup with particles of meat. He kept it tightly corked, but when the hallucination, the "Opaluma" appeared, he would quickly uncork the bottle, press it to his nostrils, and take repeated deep inspirations. Suddenly he would look up and say, "Ah, she doesn't like that! She's gone!" The bottle was certainly very vile and foul-smelling, and it is not impossible that the visual hallucination was displaced or overwhelmed by the powerful impression made upon the sense of smell.

The delusions become with time fixed and unchanging. Sometimes the patient adopts, as in the case just cited, a new word, sometimes a series of words, the origin of which often cannot be traced. This symptom is but a part of the general tendency to degeneration and fixation. The patient, too, lacks self-control and inhibition, is impulsive, and quick to take offence. He is as before suspicious, short in his replies, or may decline to answer questions altogether, saying, "You know it

already;" he seems to take for granted that the voices he hears so plainly are also heard by his questioner. At other times he is seen talking to himself, frowning and gesticulating.

The patient is now in the full tide of his persecution. He may, in his extremity, complain to those about him, his friends or neighbors. He may write letters to the authorities, to the mayor, to the police. Not infrequently he changes his residence, moves from place to place in the vain attempt to escape from his persecutors. Sometimes he appeals to the courts. Not infrequently he takes the law into his own hands. That he may under these circumstances become exceedingly dangerous cannot be sufficiently emphasized. A paranoiac patient, hearing a sudden sound behind him, may believe himself to be insulted and may turn and strike a blow; or the hallucination may give rise to an aggressive impulse, so that a stranger may be assaulted. However, this is not the chief source of danger. It is when the patient has settled upon some one person or persons as constituting his enemies, when he has selected some one individual who is the cause, mainspring, and origin of his troubles, that he is most to be feared. The danger, too, is the greater because the unfortunate victim is usually in ignorance of that which may befall him. The criminal records of every city unfortunately furnish repeated instances of assault and murder on the part of delusional lunatics. The victim being selected, the patient usually makes preparation for the act which he believes will right his wrongs. Usually he comes to the conclusion that there is nothing else to do; not only will it terminate his sufferings, but his act will call the attention of the authorities to his plight. His letters, his complaints have met with no response, perhaps with jeers and laughter, and he must end it all. He buys a revolver, or secures some other weapon, and lies in wait for his victim. One paranoiac rings

the door-bell and insists upon the person he is seeking coming to the door; another studies the movements of his victim, and traps him at his office or place of occupation; a third waits until he catches his enemy in the act of spreading the story of his shame or catches his wife in the act of putting poison in his tea. Most commonly, in the medicolegal experience of the writer, the murder is committed by a firearm, usually a revolver; much less frequently by cutting instruments or other means of assault; poisoning is rare; the same is true also of arson. That a paranoiac may devise original and unexpected means of killing is of course a possibility.

Premeditation, cunning, foresight, all may be exhibited by the patient. Usually when the act is over he makes no attempt to escape. Quite frequently he gives himself up to the authorities, and at once tells all about his troubles, tells all about the murder, the causes that led to it, and the facts that justified it. It may, indeed, be stated as a general truth that the act is open, overt, with no attempt at flight or concealment, and that it is quite frequently performed in a dramatic manner, as though to call attention to his, the patient's, sufferings.

The persecutory phase continues for many months, more frequently for several years, when certain changes are observed both in the delusions and in the demeanor of the patient. Little by little, though sometimes rapidly, the ideas of persecution are replaced by ideas of expansion and the patient undergoes a veritable transformation of the personality.

In the very beginning of the persecutory phase we note that we have to deal with a personality pathologically expanded. Everybody concerns himself about the patient, the newspapers write about him, the people on the street talk about him. Later conspiracies are formed against him, great organizations,

like the Masons, powerful bodies of men, the police, the detectives, combine against him. It is not surprising that in the course of the affection the patient should finally arrive at the logical conclusion that he must really be a person of great consequence to be the object of such great and insistent effort to effect his destruction. In reality he is rich and powerful; he is not the poor clerk or workman he is given out to be, but he is really of aristocratic rank and birth; he is not the child of the persons supposed to be his parents, he was substituted in the cradle, he is really of a princely line, of royal descent, an heir to a throne wrongfully deprived of his rights. There can be no doubt that in some patients the transition to the expansive phase is accompanied by this logical train of ideas. However, in the form of paranoia we are considering—that is, the hallucinatory form—the transformation of the personality is more frequently associated with the appearance of pleasurable and expansive hallucinations. Instead of curses, vile and obscene names, the patient now hears himself addressed in words of respect, praise, and adulation; wealth, nobility, titles follow in their turn. The expansive delusions based upon them commonly lack the definiteness and precision of the delusions of the stage of persecution; indeed, they frequently betray by their very content the deterioration attending the progress of the disease; as in the case of the woman patient who tells us that she is "queen of the navy," or of the man who insists that he is "king," but goes no farther, and is content to wear his paper crown. In some patients the transition to the expansive phase is very gradual, and during this period both persecutory and expansive hallucinations may exist together, at times one and at times the other set predominating.

THE HYPOCHONDRIACAL FORM

The picture of paranoia outlined above is, as has already been indicated, frequently departed from. Not only are there patients who during the entire period in which they are under observation remain in the persecutory phase—never reaching the period of transformation and expansion—so there are others who remain, as it were, in the preliminary stage of hypochondriasis. In such instances, hypochondriacal ideas dominate the clinical picture, and the latter may resemble an ordinary hypochondriasis; however, the paranoid character of the symptoms sooner or later becomes evident. The patient suffers, as before, from obscure sensations, unpleasant, distressing, or painful, which he refers to various parts of his body or to the different viscera. It is early noted that he pays great attention to the passing conditions and happenings in the external world; these he believes influence his troubles or perhaps make them worse. He watches the wind, the temperature, the dampness, or the rain. He restricts his diet first to one kind, then to another kind of foods; he attributes baneful results to this or that course of living, to this or that kind of medicine. Sometimes he develops ideas of being poisoned. He fails to get relief from a physician whom he consults, changes to another; finally, thinks that the physicians are harming him, and, indeed, doing so intentionally. Perhaps it is some other person to whom he attributes his illness, some one who is hostile to him, and he may, as in ordinary paranoia, evolve a series of systematized persecutory delusions, sometimes in regard to a group of persons, sometimes in regard to one person, as in paranoia ordinarily.

THE SELF-ACCUSATORY FORM

Again, cases of paranoia are met with in which the patient may manifest, among other ideas, ideas of self-accusation.

These cases are infrequent, but may lead to confusion, as they bear some resemblance to melancholia. The patient may say that he is very wicked, that he has committed this or that evil deed, has been dishonest, has committed theft, is a vile creature, the scum of humanity, the refuse of society. However, he does not, as in melancholia, talk of the shame and ruin he has brought on his family, nor does he evolve the delusion of the unpardonable sin. On the contrary, the very extent of his self-accusation implies a certain expansion of his personality. Besides, a thread of persecution may run concurrently with the ideas of self-accusation, or may, while the patient is under observation, become frankly established. He is deserving of punishment, and yet finds the punishment to which he is being subjected out of all proportion to his faults; again, he says that he is not responsible for the things that he has done, that he was led to do them; that, indeed, he is the victim of a conspiracy which has brought about the situation in which he finds himself. General somatic and auditory hallucinations, as in ordinary paranoia, may also play a rôle. Everything convinces him that he has always been—indeed, from his very birth—the subject of evil influences, the victim of his enemies, who drove him into evil ways, and who always prevented him from doing anything good. He resents the injustice from which he has suffered, and little by little the ideas of self-accusation disappear and are replaced by ideas of persecution. Later still, and in due course, an expansive phase may follow, the patient believing that the attention which has been directed to him from all sides is due solely to his importance, that just because of his prominence he has been selected as the victim of the conspirators. Paranoia with auto-accusations is, as already stated, infrequent, if not rare. Again, the picture presented may vary at different times. Auto-accusatory and perse-

cutory ideas may be present at the same time, now the one and then the other group being more prominent, or the auto-accusatory may finally give way altogether to the persecutory ideas while the patient is under observation, as just indicated above.

THE MYSTIC FORM

Much more interesting than either the hypochondriacal or self-accusatory forms of paranoia is the form to which the term mystic paranoia has been applied. Here the patient again passes through a hypochondriacal period, characterized by vague and bizarre sensations. The patient may as before attribute them in due course to persecutory agencies, but sooner or later they receive a mystic interpretation; that is, the patient believes himself either to be the victim of evil spirits, demoniac or diabolical agencies, or, perhaps, that his sufferings have been inflicted upon him in accordance with the divine will. It is noted that patients who develop mystic paranoia frequently present in their childhood abnormal religious tendencies; thus, they dwell upon and discuss religious questions to a morbid degree, devote themselves with abnormal fervor to their religious duties, make premature or precocious religious profession or manifest phases of religious exaltation. It can readily be understood, also, that if a child presenting such peculiarities be in addition made the subject of undue religious training, or be brought up in an atmosphere too austere and repressed, an atmosphere in which the depressing features of religious doctrines are over-emphasized, the abnormal tendencies of the child may become greatly exaggerated. However, we must bear in mind that paranoiacs are born, not made, and that the delusional lunacy from which they suffer does not require an improper religious training to develop it; the latter merely, in suitable instances, enhances and hastens

the development of the symptoms. In many cases the delusional state observed in the period of full development may properly be looked upon as merely an outgrowth or amplification of the abnormal traits inherent in the child.

As has just been stated, the visceral and general somatic hallucinations of the depressive period are ascribed by the patient not to the persons about him, but to mysterious and occult causes. He is being persecuted by evil spirits, by sorcerers, by the devil, or he may believe that he is being punished by God. One of the remarkable facts of mystic paranoia is the great frequency and prominence of sexual phenomena. These doubtless have their birth in genital hallucinations; of all the visceral hallucinations these lead to the most striking results. The patient is erotic; sexual excitement is marked; he gives way to masturbation, practices sexual congress, sexual excess, perhaps sexual perversion. Every sexual act is preceded by painful struggles and followed by remorse and discouragement. Sometimes the patient's eroticism is purely mystic; he or she is in love with this or that saint, this or that divine personage. Women are subjected to carnal temptation by the Godhead to test their virtue, or they claim intercourse with the Deity, are pregnant, and will give birth to the Saviour. The sexual hallucinations seem in some cases to be very vivid and to be accompanied by very active sensations.

Sooner or later visual hallucinations are added. Indeed, it is characteristic of mystic paranoia that visual hallucinations, like the sexual hallucinations, are very frequent and prominent. The patient who is absorbed in his excessive piety becomes more and more intense in his devotion, spends his time almost continuously in religious contemplation and prayer, and finally begins to hold communication with God, the Saviour, the Virgin, the angels, who appear to him in visions. The hallu-

cinations may consist of bright lights, brilliant halos, glorious and imposing figures, who smile upon him, make signs and gestures. Usually the patient tells us of the things he sees; later, in many cases, it is evident that the visions also speak to him. In other words, in the progressive development of symptoms hallucinations of hearing are added, and the voices tell him of the great mission, the great future that is his; he is destined to save the world, to reform mankind, he is to be the Messiah, is to represent God on earth. The expansion grows until he not infrequently asserts that he is "the Christ" or God himself come back to earth. During the seeing of the apparition and the hearing of the voices, the patient may pass into a clearly marked hysterical crisis. He may pass into a condition of ecstasy, and not infrequently he assumes fixed or cataleptic attitudes.

In mystic paranoia, as in the other forms, the patient passes through a period of depression, a transformation, and a period of expansion. The patient looks upon his period of depression, with its trials and sufferings, as a period of probation, during which he is tested, chastened, prepared for the great rôle to follow. The period of depression is commonly quite prolonged, the ideas are evolved gradually and slowly systematized. Sometimes the transition to the expansive stage is very gradual, so that both persecutory and expansive ideas may be present at the same time. Thus, while the patient believes himself to be ordained, and is actually engaged in carrying out the divine will, he is, notwithstanding, suffering from the evil influences about him, is subjected to carnal and other temptations by the devil.

Quite commonly the mental state of the mystic paranoiac is such that his pathologic condition is readily recognized. Sometimes, however, he is a man or woman of powerful per-

sonality, of force, of natural eloquence, and of convincing manner. Under such circumstances, he not infrequently secures a following, and one, too, that may grow to huge proportions. One need hardly mention the divine healers who arise in every age and in every country, nor speak of those who actually found new faiths and creeds. Mystic paranoia is a danger that is real, grave, insidious. The unknown, the mysterious, the occult inspire awe and dread; they also weave a hypnotic spell; they bind in hopeless impotence, chain in blind fascination the simplest workings of the mind. The every-day facts of life, of existence, are denied and absurd delusions substituted. Realities are hallucinated away and replaced by the intangible figments of mental disease. The communicated madness so arising may become epidemic and may last for centuries. The rôle played by the mystic paranoiac is well illustrated by the history of Sabbatai Sebi, so dramatically told by Zangwill in his "Dreamers of the Ghetto." Sabbatai, a typical mystic, after a long preliminary period of depression and preparation, passed through a typical transformation, and finally announced himself as the Messiah. He performed miracles, was accepted by many thousands of Jews, and even by Gentiles, both in Palestine and Europe, and even after the collapse of his pretensions and his death a sect, the "Dormeh" of Salonica, long survived him.

Mystic paranoiacs are not physically as dangerous as the ordinary persecutory cases, and yet their delusions sometimes lead them to the performance of barbarous and cruel acts. Now and then a mystic will, in obedience to his hallucinations, slay his own child—perhaps as a sacrificial offering or in order to hasten its advent into paradise. Others during the period of depression and suffering, a period often regarded by them as one of penance, will scourge themselves

or subject their bodies to self-inflicted torture. The patient believes that these punishments chasten him and are pleasing to God; he often regards them as his only means of salvation. Sometimes he mutilates his own body; thus, the Skoptzi, a mystic sect of Russia, castrate themselves and amputate the breasts of their women. Others again see in death, in suicide, the only hope. Sometimes a mystic will persuade others to join him, and a number of persons may agree to die together and may actually carry out their project. The method selected may be extremely barbarous and revolting. Thus, the patients may bury or immure themselves alive. Not longer ago than 1897 an incident of this kind occurred at Ternovo, Russia. A community of "old believers" objected to the taking of the census, a proceeding which they regarded as sacrilegious; rather than submit to this persecution, and led by one of their fanatics, they decided to die. They dug their own graves, which they entered alive, while one of their number, who had been charged with this duty, filled the graves with earth and stones. Twenty-five persons actually perished in this way. The member who survived, and who carried to its fulfilment this terrible act, failed to keep his own promise, for he lacked the courage to kill himself. Only a few years ago an incident occurred in Canada that was almost as distressing and certainly infinitely pathetic. Members of a Russian colony, composed of a religious sect known as the Doukhobors, under the leadership of one of their number, wandered over ice and snow, barefooted and bleeding, faint and famishing, seeking Christ in the wilderness. They knew that Christ was there, that they would see Him in the flesh, hear His voice, and that all their sufferings would be at an end. The Canadian Government was finally obliged to intervene, and to arrest this cruel and aimless pilgrimage by force. It must not be imagined that

incidents of this kind occur only among Russian peasants; nor must we go back to the Middle Ages or to European countries to find examples of the baneful influences of mystic paranoia. It is not necessary to go back even as far as our own Salem witchcraft to meet with incidents equally terrible. In our own country, in our own day, with its boasted enlightenment and civilization, a woman is allowed to die in childbirth, a child of diphtheria, a man to lose his eyesight, a contagious disease to become epidemic, all because the relatives and friends of the patient are followers of a cult which denies the very existence of disease.

It is one of the unfortunate peculiarities of mystic paranoia that it frequently and very readily spreads, as we have seen, to other persons. Unfortunately every community, and especially the modern community, contains large numbers of persons of feeble mental resistance, of hysterical make-up, of persons who are morbidly vulnerable to suggestion. It is these upon whom the delusions are grafted, and it is they who in turn transmit them to others. It is interesting to note, also, that the hallucinations of vision and hearing are excited in a relatively small number; it is the naked delusions that are taken up by the masses. Ordinary persecutory paranoia may also, though rarely, be communicated to others; this may occur in hallucinatory paranoia, though it is more likely to occur in the non-hallucinatory form. This communicated madness will be considered a little later. (See Part II, Chapter IV.) At present, we will turn our attention to the non-hallucinatory form of paranoia or paranoia simplex.

PARANOIA SIMPLEX

The term paranoia simplex is here used to designate a systematized delusional lunacy, in which the delusions are related

to the perceptions of the patient rather than to any hallucinations which he may have. He weaves his delusions from the things he actually hears and sees. Hallucinations are here less prominent and play a less striking rôle than in ordinary hallucinatory paranoia. However, that the patient is not suffering merely or even principally from a defect of his logical faculty becomes evident, I think, when we carefully study him. We soon learn that the delusive ideas, even though not the outgrowth of special sense hallucinations, are intimately associated with disturbances in the way the patient feels; *i. e.*, with disturbances of his general somatic feelings or sensations. These disturbances should, I believe, be regarded as hallucinatory, just as much as special sense or visceral hallucinations. Further, when we learn that in some cases frank and outspoken hallucinations of the special senses are also present, we conclude justly that the difference between this and the ordinary hallucinatory form is not as great as would at first sight appear. However, this form presents certain striking peculiarities; first, although the patient evolves a series of systematized and fixed delusions, there is, at the same time, a remarkably high preservation of the general lucidity, of the ordinary sequence of thought, of ordinary conduct and will-power; second, the course of the disease is excessively slow—so slow that, though the tendency is as in ordinary paranoia toward mental deterioration, such deterioration may not be marked even after the patient has been under observation for many years. It was such considerations as these which led Kraepelin to grant this affection an entirely separate, a distinct, consideration in his nosology, departing, in this respect, from his earlier position, in which he treated it as in close connection with ordinary hallucinatory paranoia. In taking this course the distinguished German alienist has, I believe, done violence to clinical fact. He has accepted merely differences of degree

as radical distinctions, and has not given due weight to intermediate forms; the existence of which must be frankly admitted. After all, the discussion resolves itself into the question of the use and application of the word paranoia, and to me it seems, as already stated, that the purposes of psychiatry and of the student are best served by retaining the word in the sense in which Mendel first employed it.

The beginning of the affection is extremely gradual. It is characterized by depression, which may be slight in character, by obscure bodily ills, by vaguely defined hypochondriacal or visceral sensations. At times the latter attain the character of well-defined hallucinations. The depression may be sufficiently marked to attract the attention of the family; more frequently it is fugitive, changing, recurring; perhaps accompanied by ill-defined fears or suspicions. One of my patients, while in this stage, retreated to his home in the country, isolated himself for months, and denied himself alike to friends and relatives. The latter became alarmed and declared that he must be ill, a fact which he indignantly denied, and at once attributed to their desire for his death that they might profit by his estate.

Sooner or later the patient acquires the notion that he is not being properly treated by his family. He feels that he is being ignored, is not receiving the attention which is his due; no one understands, no one appreciates him. He develops a growing feeling of antagonism to those about him; conducts himself like a stranger; is indifferent, unnatural, even inimical. Little by little his distrust of those about him steadily increases. A word, a phrase, a harmless remark is taken up, brooded over and misinterpreted. A smile, a glance, a cough is regarded as a covert sign, an expression of derision or of hatred. Everything that he sees or hears now adds fuel to the flame. Articles in the daily paper, actors upon the stage, the whistling of a

popular air upon the street, all have a peculiar significance; all are intended for him. He is being lied about, libeled, traduced, vilified, calumniated. At first reticent, he may later accuse persons about him of wilfully and purposely maligning and trying to ruin him. He looks upon their astonishment as assumed, and upon their disclaimers as mere evasions of the truth. Sooner or later he becomes convinced of the formation of a conspiracy against him. Sometimes this conspiracy assumes huge proportions, and may include even the crowned heads of the world. At the same time, he develops ideas of grandeur. He discovers new and wonderful qualities in himself; he feels that he is very talented, very learned, a great poet, a great composer; is on the eve of making great discoveries which he will with great magnanimity give to the world. One of the patients under my observation boasted of having written many hundreds of poems and exhibited a large number of doggerel rhymes. Another made a great mathematical discovery,—namely, that numbers have sex; another still discovered that his right hand communicated to him in automatic writing the manner in which he was to conduct his business with success. (See Part III, Chapter I.) The same patient believed that a huge conspiracy had been formed against him to obtain possession of his wealth.

As in ordinary paranoia, the very magnitude of the conspiracy against the patient proves that he is in reality a great personage. Long dissatisfied with his surroundings, with the circumstances in which he has been born, he now denies his parentage. The reputed parents are not his; they suddenly stop speaking when he enters the room, or speak in whispers; are frightened, look guilty when he addresses them. They have merely been the paid agents of his enemies to keep him in obscurity. To accentuate the difference between himself and

his family, he may change, as did one patient, the spelling of his name; another added a new name to the one she already bore and changed her nationality. Another still deliberately changed both her name and her mother.

The fact that the patient is really an important and powerful personage is strengthened by the evidence which he sees everywhere about him. Distinguished people, people of wealth, men of affairs, the nobility, princes, royalty, go out of their way to meet him, if only to pass him in their carriages. He fancies that great riches await him, riches of which he has been unjustly deprived; or, he is a great reformer, is to become Pope, has a mission to perform, may believe himself to be the Messiah. He may also dress himself in some peculiar way in keeping with his expansive state. His hair or his beard may be worn excessively long or may be peculiar in their cut. However, it is rather his manner, his demeanor, and gestures that attract attention.

The patients suffering from this form of paranoia commonly present a commingling of persecutory and expansive ideas. In the beginning there is present a depression, a persecutory phase; relatively early, however, expansive ideas manifest themselves, and there is not that definite period of the transformation of the personality so often seen in typical hallucinatory paranoia. Further, when the patient is well launched into the expansive phase the persecutory ideas are usually not forgotten, but frequently persist in a marked degree; after all, however, the expansive ideas are much more pronounced than the depressive; the latter seem merely to stimulate and accentuate the expansion. The expansion at times assumes almost incredible proportions. Thus, in one patient, a woman, the conspiracy embraced her mother, her sister, her neighbors, prominent citizens of her city, merchants, the editors of news-

papers, the mayor, the governor, national senators, the president of the United States, the king and queen of England, the president of France, the emperor of Germany, the Pope. All of these persons were united in one vast conspiracy to injure and destroy her, to poison her, to do her to death. The object of this huge plot was to secure possession of a vast fortune which she possessed. She believed herself to be a person of great consequence and influence; she possessed greater power than the Pope. To show how slender is the basis of fact on which a paranoia of this kind is based it should be stated that a distant relative had died about fifty years before, in some unknown part of the world, and the tradition survived him that he had left an estate. Not a scrap of paper, not a letter, not a single writing, not a vestige of any evidence, written or oral, of the actual existence of this estate existed, and yet upon a mythical tradition the patient built her vast superstructure of illimitable power, wealth, and world-wide conspiracy. Ordinarily this form of paranoia is defined as one in which the patient evolves his delusions from actual experiences, actual observations and perceptions; how little semblance of actual fact may suffice the case just cited fully illustrates. Evidently, too, we cannot ascribe the delusions altogether, or even in large part, to the tradition of a wealthy relative; they must have had some other basis, some other mainspring of origin. This, it seems to me, can only be found in the "feeling" of the patient. The "feeling" of greatness and power must be looked upon as a hallucination, a hallucination of the cenesthesia, or, better still, of the general psychosomatic sense. We know that certain poisons, *e. g.*, alcohol, induce such hallucinations of "feeling," and it does no violence to suppose that the pleasurable states of paranoia are similarly hallucinatory, and, it may be, similarly of

toxic origin. That hallucinations of taste occur in this form of paranoia can be inferred from the frequent presence of the delusion of poisoning. Hallucinations of hearing are infrequent, but they also are met with. This is true also of hallucinations of sight.

The difference between this form of paranoia and ordinary hallucinatory paranoia is not quite as great as it would seem. In the latter the delusions are, as has been pointed out, intimately associated with hallucinations—visceral, auditory, and at times visual; in the form under discussion, the persecutory and expansive ideas are likewise associated with hallucinations, with hallucinatory states of the general body sense, and, though in a much less marked degree, with ordinary visceral and special sense hallucinations.

A final point remains to be again emphasized; namely, the relatively high degree of lucidity in paranoia simplex. This lucidity is so great that persons coming into casual contact with the patient may not suspect that he is insane. It is only when the well-spring of delusions is tapped that the condition of the patient becomes evident, or when some overt or unusual act attracts attention. Because of this relatively high lucidity, it is often extremely difficult and even hazardous to bring about the commitment of the patient to an asylum. Not infrequently there are relatives, bearing the stripe of the same disease, or who have more or less adopted the patient's delusions by contagion (see Part II, Chapter IV), who stoutly resist commitment; again, the patient, having been committed, employs attorneys to secure his release, and may thus give relatives, physicians, and friends endless trouble. The patient himself is so clear that he fully recognizes the nature of the legal proceedings instituted to regain his liberty; he regards his commitment as merely an evidence of the conspiracy against him

and decides to oppose cunning with cunning. In other words, he suppresses his delusions, declares that he has no enemies, does not believe that he is the peer of emperors, kings, and popes. When confronted with letters and other evidences of his delusions in his own handwriting he may answer, "Yes, I did think like that at one time, but I know now that that is not so; I don't think so now." There is a limit of course to this suppression of delusions. Sooner or later they come to the surface again; sooner or later a skilful question, an unexpected thrust, will reveal the truth; and yet the patient may simulate the absence of the delusions so successfully as to deceive physicians, court, and jury. Finally, asylums and physicians dislike litigation extremely, and are anxious to get rid of these very troublesome cases. As a result, the number of cases of paranoia simplex found in any one institution is extremely small; sometimes, indeed, there is none.

Occasionally this form of paranoia presents itself with special clinical features. Thus, as in ordinary paranoia, erotic symptoms are very common. The patient, if a woman, frequently claims to have received offers of marriage from distinguished personages; at other times she is the victim of indecent proposals, or she may give herself up to obscene, filthy, vile accusations against others. Every now and then sexual ideas dominate the entire picture. This, for instance, was the case in a patient who made the discovery that the sexual organs in both man and woman consisted of two entirely separate parts; namely, certain structures which she termed the "love organs," and certain structures which she termed the "reproductive organs." She further declared that she had discovered a method by means of which the love organs alone could exercise their function without the reproductive organs taking any part; in other words, she claimed to have knowledge of a method by means of which the sexual act could be prolonged and repeated in-

definitely without any risk of impregnation. She called this state the perpetual honeymoon. Although she was unmarried, and, as far as could be ascertained, had herself never had carnal knowledge, she conceived it to be her mission to instruct mankind in her discoveries. This she advertised to do by private instruction, for which she proposed to charge a fixed fee, and she also wrote and had printed pamphlets which she disseminated in various ways. Later, sexual hallucinations seem to have become very vivid, and led in due course to the delusion that she had a "spirit husband." At various times the sending of her pamphlets through the mails brought her into conflict with the postal authorities, and upon one such occasion she was, after medical examination, committed to an asylum. She presented such a high degree of lucidity that the hospital authorities contemplated her discharge, when she was transferred to another institution. Here she remained a number of months, when she finally secured her release by disavowing, first, her belief in her spirit husband, and, finally, her other delusions. After her release she removed to another city, again announced her views, again violated the law relating to the sending of indecent matter through the mails, was arrested, and, finally, killed herself by the inhalation of illuminating gas.

More frequently the eroticism manifests itself in other ways. Sometimes the patient, no doubt as an outgrowth of her sexual hallucinations, believes that there is a conspiracy to defame her character, to impugn her virtue; at others she makes accusations of indecent proposals, exposure of the person, rape, assaults of all kinds. Again, a chance meeting, a glance in the patient's direction, a phrase upon the stage, a few lines in a newspaper, convince the patient that this or that prominent person is in love with her. Thus, one patient believed that a President, with whom she had never exchanged a word, and

who already had a wife, was anxious to marry her. Occasionally such patients write amorous letters and in other ways subject the object of their delusions to annoyance and even persecution. If answers are not received, the patient writes again—usually many times—and, still receiving no response, sooner or later enters upon a campaign of threats, of reprisals, vilification, and abuse. Not infrequently, the patient is an old maid and near or at the menopause; perhaps, she is in the early forties. (See Part III, Chapter I.)

At times, again, paranoia assumes the form of an insane jealousy of the wife, husband, or loved one. That much suffering may thus ensue to the unfortunate object goes without saying. The latter is watched, spied upon; every act, every innocent word is woven into the delusions. The husband believes that everybody is trying to seduce his wife; she cannot move about, speak to, or permit herself to be in the company of the opposite sex. Accusations, cruelty, persecution, sometimes assaults, and even murder may occur under these circumstances. As we shall see a little later, the delusions may assume the character of clearly-marked belief of marital infidelity, especially in the so-called alcoholic form of paranoia. (See Part II, Chapter I.)

Sometimes the delusions assume a political character. The patient believes that he is being watched, that spies are upon his track, that information is being lodged against him, that he is in danger of arrest and imprisonment; that the government is persecuting him. Of course the expansive delusions, that he is an important political personality, that he has been rightly elected to this or that office, of which he is deprived by the machinations of his enemies, are not wanting, and that they may assume most varied forms goes without saying. Again he is the heir deprived of his heritage, the rightful ruler, the victim of political conspirators.

Every now and then the affection assumes the form of a paranoia of litigation. The patient believes that he can only obtain redress for his wrongs in the courts. He brings suit, it may be, because he believes himself to have been unjustly treated by the executors of an estate, defrauded of his inheritance; or, it may be, he has been vilified, slandered, libeled, and he seeks satisfaction through the law. Sometimes there is just sufficient basis in fact to give coloring to the patient's contention; *i.e.*, an estate has actually been divided, certain business transactions have really taken place, the patient did live in a certain neighborhood, perhaps did not have friendly relations with those about him, the members of his family or his business associates; but that he has suffered wrong, as he believes, does not of course follow. However, the patient frequently is so lucid, and the presentation of his case so plausible, that he may have little difficulty in securing the services of an attorney. Usually the facts developed subsequently reveal that the patient has no case. He may then take the matter to another attorney; perhaps the case eventually reaches trial. Inevitably the absurdity of the situation, the untenable character of the claim, the hopelessly illogic contentions of the patient, become apparent, but he fails utterly to comprehend that he has been in the wrong, mistaken, or even that he has used bad judgment. On the contrary, he now weaves the lawyers, the witnesses, the jury, the judges into a systematized delusion of conspiracy. His counsel has played him false, this or that witness has betrayed him, the jury has purposely made common cause against him, and even the judge has been in collusion with his enemies. One of these patients brought action against her relatives because of fraud in the division of an estate; it was quickly proved that she had not only been paid her full share, but, because of her improvidence, had subsequently been a charge upon the other members of her family. To show

how inimical her relatives were to her, she—unexpectedly to her counsel—produced a bottle containing some decomposed cherries with which she declared they had attempted to poison her. It was also shown that she believed that her relatives had wired her house, and she had actually, with a hatchet, chopped off a large part of the plaster in her parlor in a search for the wires. Her case was of course easy of solution. Unfortunately the situation is not always cleared up so readily. Sometimes the facts are quite involved and complicated. Not infrequently, before the insanity of the plaintiff is finally clearly established, lawyer after lawyer is consulted and suit after suit instituted. Often much suffering and unhappiness result. Frequently, too, the patient impresses his delusive ideas on others, who become his partisans and champions. In the case just mentioned, the woman had impressed one of her friends, a minister, with the justice of her claim, and he had actually gone so far as to join her in the plaster-chopping search for the wires in the parlor; the offending relatives lived next door.

An interesting and often troublesome form of paranoia is that every now and then exhibited by persons who conceive it to be their mission to accomplish the social or political regeneration of the world, to make humanity good and happy. As a rule, they advocate some utterly impracticable panacea for the ills from which the world suffers; they aim to reform the world at a single blow; there shall be no more poverty, no more injustice, no more suffering; everybody shall have his share, everybody shall be happy; there shall be the advent of the millenium. These persons do not, as a rule, suffer from hallucinations, nor are they the victims of mystic ideas, as in religious paranoia; however, they also are "called," have a "mission" to perform. As a rule, hereditary factors are very pronounced; the period of depression is sometimes difficult

to trace, though not infrequently there is an antecedent history of a long-continued period of general ill-health. The expansion of the patient is obvious. He has an overwhelming confidence in himself, is assertive and aggressive to a degree. He speaks in terms of exaggeration alike of the difficulties with which he contends and of the great things he is going to accomplish. Quite frequently he speaks, lectures, writes; sees evil where others fail to see it. As a rule, the mental state of such a person becomes evident after a while even to the laity. He may, however, for a long time obtain a deluded following. At times his ideas are frankly out of all keeping with his surroundings, he believes himself to be royalty or destined to become king or emperor; sometimes the degeneration progresses and he believes himself to be the Deity. Hallucinations of hearing are met with in a small number of cases.

Occasionally the expansion expends itself in the direction of literature, art, or invention. The individual writes literary or scientific articles and books, undertakes some great work of art upon which his fame is to endure for all time; or he devotes himself to some invention, quite frequently something chimerical and impossible of achievement, such as perpetual motion. As in the other ambitious forms of paranoia, the depressive period is usually not marked; at times, however, we find traces of it in the long periods of trial and discouragement before the patient believes that he has really attained his object. Not infrequently he wastes his substance in the attempt to further his projects. Throughout he reveals a personality expanded beyond all bounds, a self-confidence so extreme that he does not hesitate to jeopardize the means and savings of relatives, friends, and others. Weakness and absurdity, the gross characters of the delusive beliefs sooner or later lead to the recognition of the truth, happily at times very early. (See also Part II, Chap. III.)

Prognosis of Paranoia; General Considerations and Conclusions.—That paranoia presents itself under exceedingly varied forms the above descriptions clearly show. The picture presented by delusional lunacy ranges from the paranoid dementia of dementia *præcox* (*i. e.*, the paranoia acuta of the Germans, the *délires systématisés aigus* of the French) to the lucid states met with in the non-hallucinatory forms of paranoia. The relation between paranoid dementia and paranoia hallucinatoria is, as has already been shown, by the existence of transitional forms, one of degree; cases beginning as acute paranoia may, though rarely, pass into the chronic form, or cases eventuating in chronicity may begin with rather an active onset of symptoms. We have seen that in paranoia acuta while, on the whole, the outcome is unfavorable, an individual attack, especially a first attack, may terminate in recovery; and that years afterward such an attack may be followed by a second or even a third, mental deterioration becoming finally more and more pronounced. These facts in a measure foreshadow what we are to expect in the chronic form. In paranoia hallucinatoria, to begin with, the average course consists in the passage of the patient through the period of persecution, the transformation of the personality, and the expansive state, to a final period of deterioration or dementia. The whole process extends over many years—ten, fifteen, twenty-five—indeed, it is practically a life-long disease. However, we note now and then in paranoia hallucinatoria a distinct abatement of symptoms, and even at times, though rarely, a clearly marked remission. This is more apt to be the case when the symptoms are relatively rapid in onset and course; that is, when they approximate the acute form of dementia paranoides. Again, every alienist will recall cases in which the patient, though greatly disturbed upon admission to the asylum, has, under the quiet and simple régime of the institution, rapidly and

greatly improved; sometimes so much so that well-meaning, though mistaken, friends or relatives have insisted upon the patient's discharge. Such improvement is, of course, temporary only; the patient's mental state sooner or later reasserts itself. On the whole, it may be said that the progress of a hallucinatory paranoia is not subject to marked interruptions; such variations as are noted are rather in the nature of accentuation of symptoms than in their abatement or remission.

Again, as a rule, the progress of paranoia is steadily toward mental deterioration; the degree of change and the rate at which it is established vary greatly in different cases. As a rule, in ordinary hallucinatory paranoia the deterioration becomes more and more evident as the years pass by, until finally a stage of terminal dementia is reached. Relative lucidity may, however, be preserved a long time; especially is this the case in the mystic form. In non-hallucinatory paranoia the change, as we have seen, is exceedingly slow, and a marked terminal dementia may never be reached; at least not as long as the patient is under observation.

Finally, it remains to emphasize the fixation of the delusions. Once they have become established and systematized they remain unchanged, and, save for some elaboration, unalterable. In the hallucinatory form, during the early period, the delusions, though preserving their general character, may vary somewhat, but not after the affection has reached its full evolution. It is especially in the non-hallucinatory form that fixation and elaboration find their fullest expression. As has been pointed out, the difference between ordinary hallucinatory paranoia and the non-hallucinatory form is not as great as would at first sight seem. Thus, the paranoia which assumes the artistic, the literary form, and more especially the paranoia which assumes the form of social, political regeneration, bears close resemblances to mystic paranoia, itself a hallucinatory form.

This is also true, though less markedly, of the paranoia of invention and discovery.

Paranoia is a remarkable affection, because, on the one hand, it presents itself with features so striking and unmistakable that even lay persons recognize the patient at once as insane; while, on the other, it may present itself with such a high degree of lucidity, with arguments so plausible and specious, as in the paranoia of the reformer, the agitator, the writer, the inventor, that not only may lay persons fail to recognize the insanity, but may even adopt the delusive ideas of the patient, as in mystic paranoia. Many of the non-hallucinatory paranoiacs are dangerous, though, on the whole, they are less so as regards assaults upon the person and attempts to kill than are ordinary paranoiacs. Many of them are harmful in the way of disseminating dangerous theories, evil cults, and pernicious doctrines. Others again are quite harmless; especially is this the case with those whose delusions are concerned with literary, scientific, and artistic projects or with inventions. Many of these are among the harmless lunatics found in every community; some are so lucid, and their views so plausible, that they are often merely regarded as "cranks," sometimes annoying, sometimes amusing, but really quite without danger. Concerning some of them even the opinion of physicians may differ as to the fact of a real delusional lunacy. Comparatively few of the non-hallucinatory paranoiacs are, as already stated, found in the asylums. They are often committed with considerable risk to the examining physicians, and, because of the high degree of their lucidity, are often retained in the asylums with difficulty. Indeed, the asylum authorities are often anxious to get rid of them because of the very troublesome litigation sooner or later instituted by the patient or misguided friends. As already pointed out, the patient still further increases the difficulty by suppressing his delusions.

CHAPTER VI

GROUP IV—THE NEURASTHENIC-NEUROPATHIC DISORDERS (PSYCHASTHENIA)

THE group of affections which forms the subject of the present chapter is one concerning which much has been written, and concerning which there has been much difference of opinion. The close relation which some of these affections, more especially the phobias, bear to neurasthenia was early recognized by Beard and subsequently confirmed by others. In keeping with this fact, the French writers applied the term "neurasthenic insanities" to this group. That, however, some factor other than simple nervous exhaustion plays here a rôle, a brief consideration will, I believe, convince us.

In the demands that modern civilization makes upon the individual, undue expenditure of energy, an expenditure that results in over-fatigue, is of frequent occurrence. More especially is this true if the individual has inherited a tendency to nervous exhaustion; *i. e.*, a feeble resistance to fatigue. Under such circumstances a condition is established in which neither the normal amount of rest nor food suffice any longer to restore the organism to the equilibrium observed in health. Gradually a well-defined neurosis, with a definite symptomatology, becomes established, and this is widely known among the laity as nervous prostration and among physicians as neurasthenia. Its symptomatology is essentially the symptomatology of chronic fatigue, and for this reason it well merits the term, the "fatigue neurosis," which the writer has on various occasions applied to it. It is the symptoms of this fatigue

neurosis and the bearing these symptoms have on the mental affections under consideration which particularly concern us.

The first fact that impresses us in neurasthenia is that the patient becomes readily exhausted. He is incapable of the sustained expenditure of energy. This is true whether the expenditure is physical or mental. In keeping with this fact is also that of irritability, of exaggerated response to stimuli from without; that is, along with the lessened power of sustained expenditure of energy, there is also a lessened inhibition. There are present, in addition, the symptoms of deficient innervation of the digestive tract, of the circulatory apparatus, and of other structures such as the sexual organs.

The phenomena presented by neurasthenia naturally resolve themselves into motor, sensory, general somatic, and psychic symptoms, and, while it is the psychic phenomena which chiefly concern us, a brief consideration of the others serves to complete the picture; besides they are not infrequently present in a degree in the mental affections we are about to study.

When we turn our attention to the motor symptoms, we find that the muscles rapidly reveal the signs of fatigue. Thus the grip of the patient is found to be weak; occasionally, however, it seems to be normal, but, if it be tested by the dynamometer a number of times in succession, we find that it rapidly grows weaker. The various statements which the patient makes are in keeping with this finding. He will state, for instance, that he cannot walk even for short distances without inducing fatigue, and, indeed, that slight muscular exertion of any kind rapidly exhausts him. In keeping with this ready muscular exhaustion, we find a diminished inhibition of the tendon reflexes; quite commonly the knee-jerks are exaggerated. Sometimes also tremor, irregularly recurring contractions of small bundles of muscle fibers, more especially in the face and ex-

tremities (myokymia), and even occasional cramps or spasms of muscles—*e. g.*, in the calves—may be present. These symptoms may be regarded as adventitious, but are doubtless to be interpreted as due to defective and irregular innervation.

The sensory phenomena of neurasthenia are altogether subjective. The patient complains of various fatigue sensations, aches, and pains, which he refers to the trunk, the limbs, the head. These sensations are always brought on or made worse by exertion and disappear or grow less upon rest. Quite frequently the patient complains merely of a general feeling of fatigue or exhaustion; at other times of lightness, constriction, or pressure about the head, or it may be of uncertainty and dizziness. Insomnia is very frequent. It should be emphasized that objective sensory disturbances, such as anesthesia or hypesthesia, are never present.

The somatic disturbances are, as already indicated, dependent upon a deficient innervation. Thus the digestive disturbances are primarily those of weakness. The patient having taken food may feel at first no distress, but, after the lapse of a longer or shorter interval, sensations of weight, oppression, and of general discomfort in the epigastrium make their appearance; perhaps there are eructations. The patient, we learn, is also constipated. In other words, the symptoms are those of an atonic indigestion. There is not a sufficient flow of nervous energy to the glands and muscular coats of the stomach and intestines to allow either a sufficient secretion of gastric or intestinal juice, or a sufficient movement in the walls of the stomach and intestines.

When we turn our attention to the circulatory apparatus, the same fact of deficient innervation becomes evident. We note coldness, and, in marked cases, lividity of the extremities. At the same time, we find modifications in the force and rhythm

of the heart's action, in the character and frequency of the pulse, and more or less marked alterations in the vaso-motor tonus. However, the most striking circulatory disturbance in neurasthenia is palpitation of the heart; at times there is present a more or less persistent tachycardia. Everywhere we note the fact of deficient innervation and deficient inhibition; for instance, the presence of pulsation of the aorta or great vessels generally or of local pallor or flushing of various portions of the surface or extremities.

The circulatory phenomena of neurasthenia are of great importance in relation to the mental affections of the present group. Thus, fear is normally and intimately associated with quickening of the pulse-rate, often with a frank and outspoken palpitation of the heart, sudden pallor, and other vascular phenomena. That these stand in a causal relation, or at least in so close a relation to spontaneous attacks of fear in neurasthenia that they cannot be dissociated is exceedingly probable. In other words, just as an attack of fear, brought on in a normal individual by a sudden physical danger, is attended by palpitation and other vascular disturbances, so may this very palpitation of the heart, coming on suddenly and spontaneously, in its turn evoke the associated emotion of fear. That this actually occurs in neurasthenic patients is a clinical fact.

Among the more important somatic phenomena are to be included the sexual disturbances. These are in the main those of irritable weakness. Occasionally they are so marked as to form a prominent part of the clinical picture. Although the objects of the present chapter forbid an extended consideration, a brief summary of the symptoms is necessary in order that the importance and even magnitude of the rôle which they sometimes play may be understood. Not rarely the patient, if a man and unmarried, presents the symptom of

unusual frequency of seminal emissions, or, if married, may present the symptom of premature ejaculation or of the sexual act being incomplete and unsatisfactory in other ways. In women symptoms corresponding to those in the male may occur. Not infrequently, a patient complains of orgasms occurring during sleep, and may state that these are accompanied by oppressive and voluptuous dreams. If married, such symptoms are less likely to be present, but the patient may complain of some abnormality of the sexual act. There may be failure of proper response, frigidity, delay, or, as in the male, the act may be incomplete and unsatisfactory. These symptoms, whether occurring in men or women, are usually but a part and parcel of the symptom group of the general neurasthenia and are directly dependent upon it. They are due to the exhaustion, just as much as are the digestive or the circulatory phenomena, but, because they are sexual, their importance becomes exaggerated in the patient's mind and their significance misinterpreted. To this subject we will return later.

Without pausing to consider other somatic phenomena of neurasthenia, let us turn our attention to the psychic symptoms, which are, after all, the most important.

The psychic disturbances present, as already indicated, first, ready mental exhaustion. There is marked diminution in the capacity for sustained mental effort. There is difficulty in sustaining and concentrating the attention and there is also a marked diminution in the spontaneity of thought. At the same time, the patient, who is chronically tired, loses some of his personal force, aggressiveness, and will-power. He becomes unable to decide, with his usual readiness, matters of business, even ordinary or trivial matters. Unpleasant and pleasant matters alike are deferred; everything that requires any effort remains undecided. Finally, lack of spontaneity and lack of

will-power may be frankly accompanied by uncertainty, hesitation, and habitual indecision.

Again, there is a markedly increased irritability; *i. e.*, a diminution of inhibition. That the tired man is cross is as well known to the laity as to ourselves; his irritability is only a more or less marked loss of self-control, *i. e.*, of inhibition. He becomes excited more readily, uses expletives and expressions, says things to which, when not tired, he would not give vent. His emotions generally are aroused more easily than normally. He not only becomes angry more easily, but, on the other hand, a play at the theater or a newspaper account of a tragedy may move him to tears.

In addition, the patient frequently presents the symptoms of fear. That a person whose nervous system is exhausted should also be morbidly afraid is perhaps not surprising, for weakness and fear seem naturally to be associated. The degree of the emotion varies greatly in different patients. It may be vague, subconscious, ill-defined, and may be looked upon as the natural concomitant of the other mental symptoms; namely, the lack of will-power, the uncertainty, the indecision. At times the fear amounts to a general feeling of anxiety. At other times it comes on in sudden attacks, attacks which are generalized in character, and which may be properly spoken of as attacks of spontaneous generalized fear. Typical of such attacks are those which in some neurasthenics accompany attacks of palpitation of the heart. Under these circumstances the patient becomes anxious and distressed, and at times very much frightened. There is a sense of distress in the precordia—a “pain about the heart”—and the patient may feel as though something terrible were about to happen, as though death itself were impending. There is a sudden onset of tachycardia, the pulse becomes small and rapid, the face pale, the

expression anxious, the respiration hurried and irregular. If the attack be severe the symptoms may not stop here, but the patient may break out into a cold sweat, he may become faint, the limbs may become relaxed, he may sink into a chair or even to the ground. As in intense fright from other causes, the sphincters may become relaxed. The bowels or the bladder may be suddenly evacuated. Severe attacks occur, especially in women, and they vary of course greatly in degree; from a mere "fluttering" of the heart to a very grave seizure.

There are few neurasthenics who are altogether free from fear; there are at least anxious feelings which come on or are more pronounced at times, and it is a common experience for these feelings to be accompanied by distress in the region of the heart, perhaps in the abdomen, or less frequently in other portions of the body. Sometimes the fear comes on without special visceral symptoms, the patient simply becoming intensely nervous, restless, anxious, and afraid. Such states are quite frequently misunderstood by the practitioner and incorrectly characterized as hysterical. Finally, sometimes the purely nervous phenomena precede, sometimes follow the visceral phenomena; sometimes, and indeed commonly, both groups of symptoms seem to come on simultaneously.

Neurasthenia may present itself, as above outlined, as a simple fatigue neurosis. Such a neurosis does not of itself lead to changes in the quality of mind, that is, to such changes in the "manner of acting, thinking, and feeling" as to constitute insanity. In order that this should result another factor must be introduced, namely, a more or less marked degree of neuropathy. A non-neuropathic individual may from overwork or other nervous over-strain develop nervous exhaustion, but, in order that he should develop a psychosis, he must previously have been neuropathic. Usually evidences of such a neurop-

athy are revealed both in the make-up and in the heredity of the individual. It is only when fatigue symptoms appear in such a subject that mental disease results. This truth will become more evident as we proceed.

In order that we should have adequate conceptions of this underlying neuropathy, it is necessary to learn in what manner of person these affections make their appearance. We soon learn that they come on in individuals who for a long time previous to the establishment of the symptoms have not been normal. Often we receive a history that in childhood the patient was unduly impressionable, timid, shy, undecided, and lacking in initiative. Quite commonly, it is the history of a child easily dominated by its fellows, not joining the latter in their play, awkward and even clumsy in physical exercise, and often betraying peculiarities of gesture, little tricks of movement, twitchings of the facial muscles, head, or limbs; often, too, it is the history of a child fussy or fastidious in the extreme about its clothing or belongings, or, on the other hand, excessively conscientious, exaggerating the importance and gravity of its little misdemeanors, faults, or peccadillos; sometimes it is the history of a child given unduly to reflection, rumination, day-dreaming, and, at the same time, of irritable, unstable, changeable temperament.

About the time of puberty, the peculiarities of the patient may become more pronounced. Thus, the morbid conscientiousness previously noted becomes accentuated and the patient may become scrupulous to a degree. Sometimes this scrupulousness concerns itself with duties at school or other tasks, sometimes with religious matters. The other peculiarities—the hesitation, the indecision, lack of action, tricks of manner—may also become emphasized.

This is the fertile soil upon which the neurasthenic-neuro-

pathic mental disorder develops; but, before taking up in detail the mental symptoms of the latter, let us, as in the consideration of neurasthenia, first turn our attention to the physical symptoms. In a general way, we find that the latter are the same as those present in neurasthenia, and they vary in degree from those of simple nervous fatigue to those of pronounced nervous exhaustion. The motor phenomena are evidenced by readiness of fatigue, a want of energy, an absence of resistance to tire. The sensory phenomena are revealed by pains in the head, trunk, and extremities. The headaches are not infrequently pronounced and tenacious and are often described as neuralgias. Sometimes, as does also the ordinary neurasthenic, the patient complains of fulness and tension in the head, or of pressure in the temples and back of the neck. Now and then he describes bizarre sensations, such as shaking or creaking in the head, or a feeling as though the head were empty or caving in. Sometimes, too, he speaks of dizziness. Quite frequently he complains of insomnia.

Digestive disturbances, as in neurasthenia, are constantly present. As before, they are characterized by delayed and enfeebled digestion, sensation of weight and fulness, distension, eructations, constipation, offensive breath; in short, by the signs of gastro-intestinal atony. As in neurasthenia, also, the appetite is well preserved or even exaggerated; sometimes a bulimia is present.

On the part of the circulatory apparatus we note that palpitation of the heart is very frequent; indeed, that the cardiac rhythm is very variable. As before, there are also the general signs of loss of vascular tone, pallor, coldness of extremities, flushes of the face or other portions of the body. In other words, the circulatory phenomena are identical with those of ordinary neurasthenia. The skin is sometimes dry; much

more frequently the patient perspires very easily; quite commonly the hands are not only cold but moist. Sometimes the patient sweats very readily about the head and neck.

As in neurasthenia proper, the sexual functions present the phenomena of irritable weakness; there is a history of excessive nocturnal emissions, or in coition the erection is apt to be incomplete and the ejaculation premature. Similar conditions to those already outlined as occurring in the female in neurasthenia also obtain here. Indeed, in both male and female the symptoms are identical with those already outlined for neurasthenia, save that they may even be more pronounced. (See p. 179.)

An important point also to be borne in mind is that a certain number of the patients—a small number—present the signs of deficient thyroid activity. This is seen in some by an undoubted, though perhaps slight, infiltration and dryness of the skin, by a pulse rate which is rather slow, and by a significant, though not marked, retardation or slowing in the mental processes. There are not present the clearly marked symptoms of a myxedema, merely the signs of a moderate degree of thyroid inadequacy.

Let us now turn our attention to the psychic symptoms met with in neurasthenic-neuropathic mental disease. These are separable into general and special symptoms. The first are part and parcel of the state as a whole, and are found in all cases; the second give to individual cases their special clinical characters. The first resemble the general features met with in neurasthenia. For instance, the lack of sustained effort and spontaneity is here also present and is clearly recognized by the patient. The latter has a sense of "inadequacy," of powerlessness, of insufficiency. The patient is hesitating, irresolute, timid, fearful. The feeling of inadequacy reveals

itself both in the actions and in the mental operations of the patient. Merely the idea of having something to accomplish may frighten the patient, so convinced is he of his powerlessness to achieve a result. He can do nothing like the rest of the world; sometimes he feels that he cannot make a single gesture freely and with ease. This feeling of inadequacy is usually exaggerated if the task or movement is new or if the patient happens to be in the presence of strangers or in public. Sometimes the feeling is so pronounced as to lead to discouragement and hopelessness on the part of the patient and even to a profound inertia. If the patient attempts mental work, this likewise is difficult, impossible; the patient is incapable of persistence and concentration. This condition is, of course, inseparable from an impairment of the will, and coupled with it there is a feeling of uncertainty and doubt. That there is also a diminished inhibition, that the patient is easily upset, excited, and disturbed, and that he is also the victim of fear, continuous or coming on in attacks, need hardly be pointed out.

To these general symptoms there are added special symptoms and thus arise the various clinical forms. These have been variously grouped by different writers, but the following classification, which I have employed for many years, seems to be natural and to represent the actual clinical findings:

First, the Insanity of the Special Fears (the phobias and obsessions, the anxiety psychoses).

Second, the Insanity of Indecision.

Third, the Insanity of Deficient Inhibition.

Fourth, the Insanity of Deficient Will.

It is at once seen that each of these forms or symptom-groups has its prototype in the psychic phenomena present in ordinary neurasthenia.

The special fears differ from the general fears, in that

they are related to special places, special objects, special events, or occurrences. How some of them may arise can be readily understood. For instance, a patient has a spontaneous attack of generalized fear, such as has been described. If the patient be merely neurasthenic—that is, have a nervous exhaustion merely expressive of chronic over-fatigue and occurring in an individual not especially neuropathic—the attack may pass off without leaving any persistent after-effects; but if, in addition to being neurasthenic the patient be also neuropathic—*i. e.*, if he have the psychic and physical features already outlined—a pathologic association may be formed in the patient's mind, so that the emotion of fear becomes linked to certain relations of the environment. Thus, a man has an attack of spontaneous generalized fear while crossing an open space; immediately there is formed in his mind an association between the attack of fear and the open space, so that afterward every attempt to cross an open space brings on an attack of fear. The association between the open space and the fear is of course pathologic and would not be formed in a normal individual. It is extremely probable that a large number of the various special fears arise in some such manner. The fear of open spaces is known technically as agoraphobia. Similarly, the fear may arise of being in a small room, a closed space, a claustrophobia. At another time it may be the fear of being in crowds, anthropophobia; at others still of being alone, monophobia. The number of forms which the fear may assume is of course very large. It may, for instance, relate to special conditions of the environment; the patient may be morbidly afraid of the dark, nyctophobia; or contact with certain substances; *e. g.*, glass may give rise to the fear, crystallophobia. The tendency to multiply names to characterize these conditions has happily grown less. Some of

them are, however, worthy of being retained, as they serve to at once convey the idea of the character of the symptoms present. Among them is the term mysophobia, used to designate the fear of filth. In this condition the patient is constantly washing his hands, his face, his head, his person, in a vain endeavor to remove filth or to rid himself of germs.

The phobias and obsessions may have an origin in which the special fear is not based upon a spontaneous attack, but upon some special occurrence or produced by some kindred painful emotional state—dread, dislike, disgust, abhorrence. A reprimand at school may be followed by a phobia with regard to a certain class-room, a certain school book, a certain teacher. Unpleasant experiences at home, or, in older patients, in business, may be followed by obsessions. Sometimes the original cause is forgotten, but the obsession, the phobia, persists. Of course such symptoms can arise only in neuropathic subjects, and are not to be confounded with the corrective memories produced in the child by punishments, or in the adult by the wholesome and often trying experiences of his career.

Among the causes of the special fears are at times various acts of the patient, breaches of conduct, of the proprieties, peccadillos of various kinds, of which he is subsequently ashamed and which he willingly tries to forget. Among these are frequently acts relating to his sexual life. It may happen that the patient presents a history of masturbation, or perhaps of repeated prolonged and unsatisfied sexual excitement, such as may occur in engaged persons; or the patient may have had other sexual experiences, physical or mental, unnecessary to describe in detail, and which are, at the present time, embraced by the expression "sexual traumata," in common use among a certain class of medical writers. Because of the peculiar relation which the sexual functions bear to the moral and social life of the in-

dividual, the patient is apt to ascribe his nervous exhaustion, with its train of distressing symptoms, to the masturbation, coitus interruptus, reservatus, or other sexual misconduct that he or she has practised or permitted. In other words, the patient may develop a nosophobia which centers about sexual ideas. As a matter of fact, the experience of physicians has increasingly shown that the physical consequences of masturbation or of modifications of the sexual act—*e. g.*, the use of the cover, withdrawal or reservation of emission—are not as grave or as baneful as they are commonly supposed to be. In fact, their evil consequences have been much exaggerated. Persons of ordinary healthy make-up often show surprisingly few symptoms as a result both of unphysiologic as well as of excessive sexual living. Two truths become apparent; first, the effect of a sexual transgression is not so much physical as mental. The individual usually tries to forget or repress the recollection of an incident which is quite usually followed by an unpleasant revulsion of feeling; that is, after a "sexual trauma," the incident is associated unpleasantly in the patient's mind, and is, as far as possible, excluded from the field of consciousness. The second truth, which will become more apparent a little later, is that the greater the tendency to nosophobia and introspection, the greater the effect on the mind both of the sexual symptoms present in a given case and of past sexual traumata.

Again stress must be laid upon the factor of neuropathy. In an individual otherwise normal, sexual traumata, so-called, have but little effect, but if he have the neuropathic make-up here described, their influence may be far-reaching and persistent, and thus may prove a manifold cause of fears and obsessions. (See Part III, Chapter I.)

The insanity of indecision (the folie du doute, Gruebelsucht)

is merely an exaggeration of the mental state so often observed in the ordinary neurasthenic, save that it now presents itself in an extreme degree. The patient may betray his indecision about the simplest acts, such as dressing, arranging his clothing, putting an address on a letter. Many minutes and hours may thus be consumed. One of my patients would begin to dress at about half past seven in the morning, but he could rarely get out of his room before twelve. He would put on an article of clothing, would doubt whether he had put it on right, would take it off, put it on again, and repeat this act interminably. Especially was the difficulty at its maximum when he attempted to put on his neck-tie; he could never get it adjusted properly. Another of my patients could never enter a room without counting her footsteps, and then suffered intensely because she was uncertain as to what the number really was. The patient is never quite sure that that which he has done has been done correctly. On going to bed he may spend endless time in undressing, in arranging his clothing upon the chairs or other furniture, and may finally turn out the gas and go to bed. It is not, however, to sleep, but only to leave his bed to see whether he has really turned off the gas; he feels the key, is not certain, relights the jet, again turns the key, goes to bed, but only to rise again and to repeat the performance; indeed, he may spend a large part of the night in this hopeless effort to be certain. Similarly he may spend half the night locking and unlocking doors. Again, a bookkeeper who had been very expert in adding long columns of figures finally broke down, and began to be uncertain about his totals. He was compelled to re-add the same columns time after time, and had often to abandon the task in a perfect agony of doubt, utterly exhausted.

The symptom of indecision is, as we have seen, already part

and parcel of the impressionist background of neuropathy seen in the child and that it becomes more pronounced as puberty and adolescence are reached. Quite commonly the worries and doubts of the child concern themselves with school duties, as we have already pointed out. As it grows older, the indecision, instead of expressing itself in hesitation of action, may expend itself upon purely subjective matters. Something that it has read or heard in conversation on the subject of religion or morals may give rise to endless scruples and doubt regarding its own conduct. Sometimes a special character is given to the scruples by some other experience, an emotional shock, such as the discovery of the facts of reproduction or of other sexual matters. Some patients spend their time in speculating upon or doubting the reality of things; others still are unhappy because on entering a room they are not certain of the number of chairs it contains, of the number of books upon the table, or of the number of burners on the chandelier. Consequently they count and count again, and are never quite certain, or must keep on counting to reassure themselves.

The symptom group, termed by the writer the insanity of deficient inhibition, is among the most interesting that we have to study. It embraces the great mass of cases with "tics," "impulsive movements," "impulsive tendencies," and "impulsions" generally. The English writers use the term insanity with irresistible impulse, the French speak of obsessions with irresistible tendencies, while the Germans have largely employed the expression "Zwangsneurose," compulsion neurosis.

The brain, under normal conditions, is constantly eliminating impulses. These impulses are the resultants of the interaction of the mind—its previously acquired memories, associations, and activities—with the environment. These impulses are

normally controlled, restrained, inhibited; they may be diffused or they may be directed into special channels, and thus expend themselves in movements or determinations. These movements or determinations are normally purposive and useful to the organism; they may enable it to accomplish a definite object, or they permit of the harmless or pleasurable release of energy. The control and inhibition are alike potent—indeed, are more forcibly exercised—when the discharge of the impulse is attended by displeasure, disgust, or pain.

In the pathologic state we are studying there is an absence of such inhibition. For instance, a patient attempts to carry on a conversation; every sentence that he utters is interlarded by a recurring word or phrase that has no relation whatever to the content of the sentence and is entirely foreign to anything the patient intends. Quite frequently it is a vulgar word, an oath, an obscene or profane expression, that is thus interjected into the patient's speech. Less frequently it is a harmless phrase. The symptom, which is known as coprolalia, occurs in spite of the patient's will; he is anxious to prevent it, but is powerless to do so; in other words, there is a failure of inhibition. It is very apparent, however, that there is another factor to be considered, and that is the origin, the *raison d'être*, of the word or phrase which thus forces itself to the surface.

We have earlier pointed out that in the underlying neuropathy of the neurasthenic-neuropathic patients there is a group of general symptoms, and that each case is classified in accordance with the predominance of this or that special symptom. It follows, therefore, that a case presenting a phobia also presents indecision, though less prominently; similarly, a case whose principal symptom is a failure of inhibition may also present a phobia or obsession. It is such a phobia or obsession acquired in a manner already indicated which

finds here its expression. As already stated, the events which give birth to the phobia may be associated unpleasantly in the patient's mind. There is an unpleasant feeling which the patient tries as far as possible to forget; that is, the memory of the original cause, by reason of its unpleasant association, is suppressed, driven from the field of consciousness. The painful feeling, however, persists, and now forms some new and entirely pathologic association with some other mental process, usually an emissive process. In keeping with this is the fact that the symptom of coprolalia, used here as an illustration, is quite commonly but a part of a larger psychomotor discharge; that is, there is associated with the coprolalia a disturbance of movement known as a "tic," or, when widely diffused and severe, as "tic convulsif." These movements usually have the appearance of voluntary or purposive movements, save that they occur suddenly and spontaneously and usually without any relation to the environment. The head is flexed upon the chest or turned to one side, an arm is raised, the hand carried to the brow, a gesture is made as though the patient were warding off something, or as though he were protecting himself from something to his right, to his rear. Sometimes these gestures occur in group movements of great violence. Though frequently associated with coprolalia they are not necessarily so. If I were asked to name the one symptom which is more important than all the others in the neuropathy we are studying, I would unhesitatingly answer that it is the formation of abnormal, of pathologic, associations. If the association is of a given character, an attack of fear results; if of another, a tic results. The rôle which defective inhibition plays becomes evident when we reflect that the pathologic associations are formed in the same manner as are numerous others, often vulgar, indecent, or profane in the normal mind, but in the latter such associations are repressed and inhibited.

successfully and give no outward manifestation of their existence, while in the neurasthenic-neuropathic subject they are constantly given motor expression. If in the neuropathic subject an effort be made to suppress them, the patient suffers from more or less marked distress; this distress, however, gives way to a feeling of relief the moment the impulse is liberated. (See Part III, Chapter I.)

Sometimes the phobia presented is exceedingly curious. Sometimes the fear and the tic are excited by a certain number, such as 13; sometimes by certain words; sometimes the symptom presents itself in the form of kleptomania, the sight of the object and the uninhibited impulse to take it occurring as closely associated phenomena. Persons suffering from this form of the disease will appropriate miscellaneous objects of all kinds, objects useful and useless, valuable and valueless. The thefts, too, are usually perpetrated in such a way as to lead to ready discovery; though the patient, realizing the possible legal consequences of his act, not infrequently practices deception and concealment. Pyromania is another remarkable form. Here the impulse is to set fire to houses, barns or other buildings. The origin of the impulse is often difficult of explanation. Curiously enough, it not infrequently occurs in connection with sexual phenomena; for instance, while puberty is being established or near a menstrual epoch. Possibly at times suppressed sexual excitement plays a rôle. The impulse occurs at variable intervals and, it is said, is preceded by depression, unusual quiet and reserve. If the patient strives to resist the impulse, more pronounced symptoms may make their appearance. The patient may become nervous and anxious. He may complain of headache, palpitation of the heart and difficult breathing. However, as soon as the impulse is gratified, he experiences a sense of satisfaction and relief. The sight of the flames, too, is commonly

attended by marked exhilaration and excitement, and not infrequently the patient attracts attention to himself by his activity and, at times, extraordinary efforts in helping to combat the flames. At the subsequent investigation he may appear as a witness and may exhibit marked shrewdness and ability in diverting suspicion from himself. If the truth be finally disclosed, it may reveal that the commission of the act was attended by much cunning and premeditation. In the younger and more obviously defective patients, the act may be much more simple and direct and be relatively easy of detection, and may find a ready explanation in the pleasure which some children experience in playing with fire and which others derive from the sight of flames. In some cases, suggestion and imitation also play a rôle. Finally, according to French writers, pyromania is more frequent in boys; German writers, however, state that it is more frequent among girls.

Dipsomania is another condition commonly grouped with the neurasthenic-neuropathic disorders, though it is a symptom not infrequently met with in various other affections; namely, in manic-depressive insanity and in paresis. Among the disorders here considered it has, however, a different character. There is an obsession, a phobia, which is uninhibited. Probably, also, we have to do at times with the effort to repress unpleasant memories, and to which effort the alcohol is an undoubted aid. The diagnosis depends, of course, upon the history and the symptoms presented by the patient at a period when he is entirely free from alcoholic influence. The history and symptoms, on the one hand, of melancholia-mania or of paresis, and, on the other, of the characteristic features of the neuropathy underlying the special symptoms, would enable us to make a differential diagnosis. Further, in dipsomania, the drinking is rarely continuous over a long period, but is

present only during relatively short spells, and in the intervals the patient usually shows very few of the ear-marks of alcoholism; sometimes none whatever. During the attack, too, it does not matter much to him what kind of liquor he drinks. Anything containing alcohol serves his purpose, the stronger the better. If liquors be not at hand, alcohol in any form is taken, or it may be ether, morphia, cocaine, or other drugs.

The conditions met with in neuropathic-neurasthenic insanity are sometimes appealed to to explain the impulse to suicide and homicide. Thus, the sight of a weapon may suggest the impulse to use it, either upon the patient himself or upon some one else. Some patients when they handle a powerful poison experience an impulse to swallow it, just as another standing upon a great height may experience an impulse to leap. We commonly speak of such impulses as "irresistible," but are they really irresistible? The patient, it is true, says so, asserts it of his own accord, and yet the facts show that there is here a great deal of exaggeration. It has long been known that very frequently, at least, the impulse is not carried out; especially is this the case as regards suicide and homicide. The truth is that the impulsive tendency is quite constant, but a clearly marked, really irresistible impulse is often wanting. Attempts at suicide are very rare, and really successful suicide rarer still. The obsessions are much less irresistible than some authors, following the assertions of patients, would lead us to believe. Janet has strongly insisted on this absence of the carrying out of the impulse. In over more than 200 cases, in which criminal impulses were present, he did not observe a single real occurrence; he did not observe a single crime committed nor a single suicide. The loss of inhibition is not as great as it seems, and the criminal impulse is successfully combated by the patient.

Sometimes the patient makes use of means to prevent the carrying out of his act, which, if the latter were really irresistible, would be ridiculously inadequate. For instance, in a patient of Marc's it was sufficient to tie the thumbs together with a ribbon to prevent the execution of the impulse to homicide. That the statements of the patient are commonly quite exaggerated, and that they are not guileless, is quite evident. Notwithstanding, it is a well-known fact that suicide among these patients does occur. Such cases have been observed by Seglas, Pitres et Regis, and Raymond; the writer has had one such suicide in his own experience. The patient suffered severely from a marked tic convulsif, and finally committed suicide by drowning. The question always arises whether in such cases the suicide is the result of an irresistible impulse or whether it is the attempt to put an end to the depression and despair caused by an intolerable situation. While the latter possibility is the probable explanation, it is never wise to disregard the statement of the patient that he feels that he must kill himself.

The fourth form of neurasthenic-neuropathic insanity which we have to consider is the insanity of deficient will, abulia. Here the patient is unable to carry out certain, often simple, acts. As in stage fright affecting normal persons, his will power fails him. Thus, a minister is unable at the given time to ascend his pulpit. He knows the act is to be accomplished, but is unable to force himself to do it. The effort, if persisted in, is often accompanied by marked distress, pallor, palpitation, disturbed breathing. Sometimes the act which the patient fails in performing is exceedingly simple, such as rising from a chair. Very frequently the patient can overcome his inertia if a bystander gives a little support; though this support may be exceedingly slight, it may serve to re-enforce the patient's

will-power sufficiently to enable him to accomplish the desired end. That the abulia is closely related to the symptom of indecision, on the one hand, and to the phobias, on the other, is quite clear. One of my patients wanted to go to a certain hospital in the suburbs; considerable time was lost before he finally made his start. On arriving within a few hundred feet of the hospital, he finally became unable to proceed; he could go to either side, he could turn and go back, but he could not go forward in the direction of the hospital. As he felt quite ill, he made a severe effort to go, and actually fell upon his hands and knees and attempted to crawl, but all to no purpose. He was finally obliged to turn back, did so, and entered a hospital in the city. Subsequently it was revealed that a phobia in regard to the suburban hospital had played a rôle equal to his abulia. That the abulia may assume a great variety of forms, such as an inability to speak, to write, to pass through a certain door, to perform a given act, can well be imagined.

General Considerations, Course, Prognosis, Conclusion.— The various clinical forms in which the neurasthenic-neuropathic group presents itself have been known for a long time. The French writers, ever since the days of Esquirol, have made frequent contributions to the subject; among the earlier German writers it was more especially Westphal and Griesinger, and in our country it was Beard, who drew attention to these affections. They were at first described as so many different clinical entities, among which may be mentioned the various phobias, obsessions, folie du doute, delire du toucher, dipsomania, kleptomania, and kindred affections. Attempts were made early by Morel, and later by Magnan, to reconcile and reduce to a general proposition these apparently dissimilar forms. It was not, however, until Raymond, in 1892, demonstrated that folie du doute and delire du toucher possessed

psychologically identical characters that a real advance was made; but it is to Janet that the credit is due of bringing the entire group under one caption, of embracing all the apparently separate forms in one clinical conception. He showed that the various symptoms which characterize this or that form were only the expression of a deeper, underlying condition. In its way Janet's generalization was as brilliant as that of Kraepelin's in another field. Janet gave to the group, as a whole, the name of "psychasthenia," a term which must be regarded as rather unfortunate; "soul-weakness" can hardly convey a definite conception, and if we render the term into "mind or mental weakness" it embraces far more than can possibly be intended. I have for years, therefore, applied to the group the expression neurasthenic-neuropathic insanity, because, though long and perhaps cumbersome, it at least expresses exactly what is found, namely, neuropathy plus nervous exhaustion. That ordinary neurasthenia is closely related to these affections has, I believe, been abundantly demonstrated in the preceding pages. That the underlying neuropathy must also be accepted as a clinical fact goes, I think, without saying. It remains merely to add that in given cases, though rarely, the exhaustion which complicates the neuropathy may become so profound as to lead to states of actual confusion, in which even hallucinations may make their appearance. In the vast majority of cases, however, consciousness is absolutely preserved. Memory is exceedingly well preserved; sometimes there is an astonishing minutia of detail recalled; it is noticeable, however, that the memory, though exceedingly precise, is a little slow in its operations. It has also been shown by Janet and others that the reaction time in general is greater than in normal persons. The patients are, for the most part, intelligent; sometimes they are endowed with unusual ability, sometimes artistic, sometimes

literary. The power of reasoning and the judgment present no noticeable abnormality. However, by reason of the exhaustion and the inherent neuropathy—that is, because of the inability to concentrate the attention and to keep up sustained mental effort for any length of time—the ideas lack definiteness and precision. The patient tends to wander from his subject; becomes vague and uncertain. This condition is sometimes so pronounced that at certain moments the patient seems to have an actual suspension of thought, an “absence,” as it were. Janet has given to this symptom the name of “l'éclipse mentale.”

Having once been established, the course of the affection is essentially chronic, but it is not uniform. There are times when the symptoms are in abeyance or but slightly marked, and there are times when the attacks are pronounced and frequent. During the quiet periods, the general or fundamental symptoms of the affection, already fully considered, are present, but the special symptoms are lacking. Sometimes these periods of calm last for months, sometimes for several years, and during their continuance the patient may follow—and even successfully—his avocation; notwithstanding there are moments when the quiet is interrupted by brief and slight recurrences of symptoms, ominous in their import. The active periods are characterized by a return of the phobia, the indecision, in fact, of all the distressing symptoms in their full intensity.

Neurasthenic-neuropathic mental disease persists in some cases indefinitely; in a smaller number it yields to appropriate treatment, and in a still smaller number ceases spontaneously. In the most unfavorable cases it remains stationary, the patient passing through a long series of periods of comparative quiet and comparative disturbance. In the less unfavorable cases, a treatment combining both the principles of the rest cure and

of psychotherapy may bring about a sufficient approximation to the normal to permit the patient to follow his occupation and to meet his social obligations; i. e., it is possible in some cases to bring about a practical recovery. In such recoveries, however, the trained observer is still able to detect the underlying neuropathy. Cases that cease spontaneously are, as already indicated, very infrequent; however, they do occur. In two of my patients, both of them typical cases of agoraphobia, the symptoms disappeared spontaneously and did not, even after the lapse of years, recur.

It is a fact worthy of note that these patients rarely form subjects for asylum commitment. They are commonly so lucid and intelligent that commitment is out of the question. It is only in the small number of cases in which the exhaustion becomes so grave as to lead to mental confusion, a confusion sometimes marked and accompanied by hallucinations, that such a step may be advisable. There are cases, too, in which the obsession becomes so fixed and dominant as to rule mercilessly every waking moment of the sufferer, or in which the symptoms are of such a character as to make impossible or impracticable the continued care of the patient in his own home. In such instances life in a sanitorium or an asylum offers the only alternative. In cases, too, in which the impulse leads to criminal acts, for instance, in kleptomania and pyromania, the law may intervene and may lead to trial and imprisonment, or, more mercifully, to institutional restraint.

In conclusion, in order that we may view the neurasthenic-neuropathic disorders, the psychasthenias, in their proper perspective, it is necessary to call to mind the following important facts. First, it is a not infrequent experience to receive an account of nervousness, unusual shyness, diffidence or other peculiarities in the ancestry; at times of symptoms similar to

those presented by the patient, and at others, especially in the graver forms, of more pronounced nervous disorders, such as epilepsy, feeble-mindedness and alcoholism. Secondly, stigmata of arrest and deviation, though usually not pronounced, are met with in the patients with suggestive frequency. Finally, it is a striking fact, the significance of which is unmistakable, that many of the symptoms presented by psychasthenics are also found in institutions for feeble-minded children. On the whole, the conclusion has much to justify it, that psychasthenics should be grouped among the biologically defective.

CHAPTER VII

GROUP V—THE DEMENTIAS

IN the preceding pages we have considered delirium, confusion and stupor, melancholia and mania, the heboid-paranoid group, and the neurasthenic-neuropathic insanities. In order that our study of the fundamental forms shall be complete, it remains to consider dementia.

Dementia implies mental loss. All of the other mental affections thus far studied present symptoms which imply changes in the manner of thinking, acting, and feeling, *i. e.*, changes in the quality of mental action; in dementia we deal with changes in the quantity of mind. As just stated, there is a mental loss; this is a different condition from the deficiency of mind which accompanies arrested morphologic development, such as we find in idiocy and imbecility. Dementia is an acquired mental loss.

Again, dementia is of two kinds, primary and secondary. Primary dementia is a mental loss that ensues upon destructive disease of the brain tissue; such disease may be the outcome of senile changes, of disease of the vessels and membranes, or of other gross lesions, such as extensive apoplexies and softenings, or of those met with in paresis. A secondary dementia is a mental loss which is consequent upon or terminal to some other mental disease. As we have seen, it may follow one of the affections of the first group, a delirium, a confusion or a stupor, though this is infrequent. It may follow one of the manic-depressive group, though this is rare; we may recall, however, that it is every now and then met with after a pro-

longed melancholia of middle life. It is quite common as the final or terminal state of the forms of the heboid-paranoid group, dementia *præcox* and paranoia. Finally, it is practically unknown as a consequence of neurasthenic-neuropathic insanity.

Primary dementia is best illustrated by the symptoms met with in the simple mental loss that ensues in some persons as they advance in years, *i. e.*, senile dementia of the simple form. To the symptoms of this simple form we will now turn our attention, reserving the study of the confused, hallucinatory, and paranoid forms for another chapter. (See Part II, Chapter II.) An adequate conception of the symptoms of this simple mental loss renders the study of all other forms of dementia much easier.

Simple senile dementia begins gradually, so gradually that those about the patient fail to recognize it until it is already somewhat marked. The mental operations of the patient become slow, and he has difficulty in taking in new ideas; he becomes unable to learn new procedures, to adapt himself to new conditions. Soon he is no longer able to discharge his duties, to do his work as well as formerly. He no longer uses his tools as skilfully, and requires a much longer period of time in which to accomplish a given task. The latter, when completed, is not as good a piece of work as before; indeed, he frequently is compelled to abandon the task altogether, especially if this requires much accuracy or much precision of movement. Likewise his statements or his business dealings lack their former clearness and correctness. His judgment also becomes impaired, and he begins to make mistakes in keeping his accounts and in simple additions. Early in the case it becomes evident that his memory is affected. He becomes forgetful, he loses and misplaces objects, forgets the occurrences of the

day and of the day before, forgets his engagements. At first the impairment of memory relates to recent events; after a while it becomes more general. Sometimes he forgets that he has already attended to a given matter; he gives a clerk the same instructions over again; frequently repeats himself, in company repeats the same stories; wanders from his subject, forgets the point of what he intended to say; not infrequently he becomes garrulous. He loses his habits of neatness; he becomes indifferent to his dress; forgets the ordinary proprieties both of speech and conduct. Niceties of sentiment and feeling, the esthetic sense, begin to disappear. In eating he begins to scatter his food, soil his clothing; often he eats indifferently the food that happens to be in the nearest dish. He is not much concerned with the events of his household; on the other hand, he may be very cross and irritable.

Soon he becomes incapable of any serious or sustained work, mental or physical. Little by little the defects of memory grow deeper; not only recent events, but those of the middle period of life, fade. Various forms of acquired knowledge, foreign languages, attainments of various kinds are lost. Gradually, more fundamental memories also disappear. The patient forgets the number of his children or their names, or perhaps the fact that his wife, or this or that member of his family, has been dead many years. The patient becomes childish, his ideas and language puerile. He is credulous, with little will, and with greatly impaired self-control. His speech becomes incoherent, both from loss of memory for words and from feebleness of thought.

Things that he has been in the habit of doing repeatedly for many years he may, notwithstanding, continue to do fairly well and for a long time. Thus, he may be able to endorse a check or perhaps sign his name to some paper of which, how-

ever, he may have very little knowledge. A man in this condition may also play a game which he has played a great deal during his life; *e. g.*, checkers, certain games of cards. To those who have no immediate relations or dealings with the patient he may even present the appearance of mental integrity. Indeed, the intellectual void, the emotional indifference, the general apathy, often give the appearance of calm, of placidity, serenity, and even of thoughtfulness.

The patient may eat excessively, and for a long time the bodily nutrition may be well preserved; indeed, many dementes grow fat. After a while there is loss of control over the sphincters; gradually the patient begins to take food with difficulty; he loses flesh, becomes bed-ridden, and finally dies of a bed-sore or some visceral complication. Senile dementes sometimes live a long time; sometimes for several years. The length of life largely depends upon the personal care which the patient receives, and it is remarkable how long the purely organic functions—*e. g.*, digestion and circulation—may survive the disintegration of the mind.

For an account of other forms of senile dementia, the reader is referred to Part II, Chapter II.

PART II

CHAPTER I

THE CLINICAL FORMS OF MENTAL DISEASE RELATED TO THE SOMATIC AFFECTIONS

IN the preceding pages we have found that of the various groups of mental diseases, two—namely, the *first*, comprising delirium, confusion, and stupor, and the *fifth*, comprising the various forms of dementia—are closely related to somatic disease; *i. e.*, the mental symptoms are the direct outgrowth of the bodily affection. In the other groups, the manic-depressive, the heboid-paranoid, and neurasthenic-neuropathic insanities, the mental symptoms are clearly the first in importance, while the somatic symptoms, if present, are merely attendant phenomena. In the present chapter, therefore, we will have to deal largely with delirium, confusion, and stupor, and to some extent with dementia. As these forms have already been sufficiently considered, and, in order to avoid unnecessary repetition, the characteristic and distinguishing features only of the various special forms will be here considered.

The various somatic affections are conveniently treated under the following heads:

- (1) The Infectious Diseases.
- (2) The Intoxications.
- (3) The Disorders of Metabolism.
- (4) The Visceral Diseases, gross and malignant.
- (5) The Diseases of the Nervous System.
- (6) Pregnancy, Parturition, the Puerperium, and Lactation.

1. THE INFECTIONS

The mental diseases which occur during or follow the acute infectious diseases have already been considered in detail in Part I, Chapter III. They include the symptomatic and febrile deliria met with in the period of invasion and in the course of these diseases, and also the delirium, confusion and stupor met with during the period of convalescence or postfebrile period.

The symptom-groups presented differ but little, whether the infection be typhoid fever, pneumonia, influenza, erysipelas, septicemia, or the various exanthemata. Certain of the infections, however, because of the peculiarities of the clinical picture, merit a special, though brief, description. Among these are syphilis, tuberculosis, malaria, and pellagra.

Syphilis.—The mental phenomena of syphilitic infection may be divided into those of the primary, the secondary, and the tertiary stage.

Mental symptoms during the primary stage are infrequent. However, we may meet with insomnia, dizziness, marked asthenia, depression, hypochondriasis, headache and other pains. The psychic shock of the discovery of having acquired so terrible a disease may also play a rôle, and, in given cases, hysterical symptoms may complicate the picture, and the patient may give himself up to various nosophobic ideas. Sometimes persons who have exposed themselves to the risk of infection, and though there is no evidence of their having acquired syphilis, begin to worry and may develop a true special fear, a syphiliophobia. Of course, such a phobia appears only in a predisposed neuropathic subject. (See p. 182.) When occurring it is often intense and persistent. The patient wanders from physician to physician, but fails to be reassured. Each time the examination results negatively, and yet soon after leaving

the physician the torturing doubt returns; the doctor may have been mistaken, perhaps he has syphilis after all, and again the weary pilgrimage to another physician's office is undertaken. Often he tries to get an appointment with the doctor when no other patients are waiting; often he tries to see the doctor after dark, so that no one may know of his disgrace. How much more distressing still the situation may become when such a phobia is superimposed upon an actual infection may well be imagined.

Mental symptoms are sometimes, though infrequently, met with during the secondary stage. They are toxic in their nature. There may be, in some cases, toward evening a little confusion; at other times delirium; rarely are these symptoms pronounced. However, marked excitement, or, on the other hand, heaviness and stupor may be met with; sometimes distressing dreams are complained of. That, in a neuropathic subject, the symptoms presented may be quite severe, need hardly be added.

The mental affections which occur during the more advanced secondary period and in the tertiary periods partake more or less of loss of function, a loss dependent upon organic changes. These affections are, therefore, considered in the section on diseases of the nervous system. On the whole, the mental disorders of the primary and early secondary stage offer a favorable prognosis; caution, however, should be exercised in cases in which previous nervous ill-health or a bad heredity complicates the picture.

Tuberculosis.—The recognition by the patient of the existence of tuberculosis not infrequently gives rise to a marked depression, hypochondriasis and nosophobia, the patient giving way to gloomy thoughts and anticipations. At other times, more especially in tuberculosis of the lungs, there is a remark-

able and illusory sense of well-being, a euphoria. The patient believes that he is constantly getting better, that he is going to get well; he scouts the idea of dying, and sometimes maintains this hopeful attitude up to the very hour of death. At times the euphoria is so pronounced as to lead the patient into what are for him physical excesses. Sometimes he will over-exert himself; at other times he will drink to excess; even sexual excitation may be observed.

If the tuberculous infection be acute and febrile, as in miliary tuberculosis, there may of course be delirium, or if in the course of a pulmonary phthisis there be a febrile rise or possibly adventitious infection from cavities and the like, delirium may also occur.

Confusion is by no means a rare accompaniment of tuberculosis of the lungs; sometimes mental symptoms antedate the frank expression of lesions; more frequently they accompany the appearance of the physical signs or follow the full development of the latter. The confusion is accompanied by depression, to which are added very frequently suspicions and even ideas of persecution. It is not an uncommon experience for the consumptive to believe that his food is being tampered with, that something is being put into it. At times this distrust is so great that it leads to a refusal of food. That mental disorders in tuberculosis are more marked in predisposed individuals, in individuals of a neuropathic make-up and heredity, need hardly be emphasized. Finally, when gross invasion of the membranes is present, there are, of course, the added symptoms of tuberculous meningitis.

Malaria.—Malaria, as ordinarily met with, is only infrequently accompanied by mental disorders. However, doubtless owing to the intensity of the invasion, to the neuropathy of the patient, or to other and as yet unknown adventitious

factors, delirium, confusion, or stupor may manifest themselves in varying degree. Delirium may accompany the febrile stage; sometimes it may precede the latter. Occasionally an intermittent delirium may be noted, may be unaccompanied by fever, and may constitute the only or principal feature; however, this is quite rare.

Again, when the malarial attack is severe, or has been complicated by grave exhaustion, confusion may make its appearance. Like the confusion, the result of other infectious processes, it may come on after the febrile attacks have passed away or in the intervals of the latter. In the last mentioned instances, there may be exacerbations of the confusion amounting to delirium during the recurrences of temperature. The confusion is, as a rule, very profound, and most frequently deepens into stupor. At times this stupor is complicated by convulsions, sometimes epileptiform, at other times tetanoid in character. The occurrence of such seizures is usually indicative of a very grave degree of poisoning.

In chronic malaria, severe and persistent, nervous symptoms may be present, though they are not usually prominent. However, in addition to marked exhaustion and hebetude, a mild confusion may be noted. This confusion is accompanied by depression. At times, also, a degree of dementia makes its appearance; this dementia has, though improperly, been spoken of as malarial paresis.

The prognosis of malarial mental disorders is, of course, closely linked with the prognosis of the malaria itself; however, they sometimes persist after the malaria has been apparently successfully treated; doubtless the exhaustion of the patient, toxemia and inherent neuropathy, play here a rôle.

Pellagra.—Mental symptoms play a very frequent and often a very prominent part in pellagra. This fact acquires added

importance when we realize that the disease has become increasingly frequent of late in the southern and western parts of the United States. Mental symptoms are the usual accompaniments of the erythema, disturbances of the digestive tract and other evidences of infection and toxemia. As might be expected, the mental symptoms belong to the group of delirium, confusion and stupor. Delirium and active confusion with hallucinations are quite common. When the confusion is less active, it is accompanied by severe depression; often mis-called melancholia. The patient is dull and heavy, and suffers from hallucinations frequently both of hearing and of vision. At times the confusion deepens into stupor. In other cases a marked and persistent mental loss, a dementia, is established. It is important to add that suicide by drowning occurs in quite a number of cases; possibly the death by water has its origin in the endeavor of the patient to seek relief from the burning sensations caused by the erythema and other lesions of the skin.

Rheumatic Fever.—Rheumatic fever, which must be classed among the infectious diseases, may present, as is well known, delirium in its febrile period. Rarely this delirium is very active and persistent. More frequently a long-continued confusion with painful hallucinations and delusions makes its appearance. As in the other infections, this disturbance comes on in the postfebrile or convalescent period of the disease. The hallucinations are usually quite active and are both auditory and visual. In its general symptoms and character the clinical picture does not differ from that of ordinary confusion. (See Part I, Chapter III.) It may last a number of weeks. In one case under the writer's observation the patient was for a time stuporous. The prognosis of the mental symptoms is, on the whole, quite favorable.

2. THE INTOXICATIONS

The mental disorders resulting from the various forms of intoxication bear a general resemblance to each other. In a sense, the action of the different poisons upon the cortex is the same; the clinical pictures, however, differ widely in their details. Each form of intoxication is distinguished by its own special features, though in its fundamental characters it resembles every other.

ALCOHOLISM AND THE ALCOHOLIC INSANITIES

Alcohol, the most widely used of all the poisons, may, in so far as its action upon the nervous system is concerned, be taken as a type. In general terms, its effects are those of depression of function, delirium, confusion, and mental loss; *i. e.*, the disorders which it produces like those which follow the infections are classifiable under the first and fifth groups; *i. e.*, delirium, confusion, stupor, and dementia.

When we approach the subject of the effects of alcohol, we are impressed, first, by the difference in individuals as regards susceptibility. The degree of resistance to its action may, on the one hand, be enormous, and, on the other, exceedingly slight. Second, we learn that certain causes predispose to its excessive use. Feebleness of resistance may be due to a neuropathy, a neurasthenia or a psychasthenia. Sometimes the neuropathy is inherited. Quite commonly we find in the family histories of alcoholics a record of alcoholism, of neurasthenia, or it may be of actual psychoses. The inheritance of ready exhaustion, of depression, of a neuropathic make-up generally, undoubtedly plays a rôle both in the feebleness of resistance and in the production of the alcoholic habit. Among the causes leading to an acquired neuropathy are exhausting illness, chronic overwork and privation, or all of these causes variously combined. Sometimes the habit has its origin

in the unhappiness resulting from the patient finding himself in an occupation or calling to which he is unsuited and in which he sees nothing but failure. Frequently, too, the patient resorts to alcohol to aid him in suppressing a painful memory or to obscure the depressing facts of an existence alike intolerable and unchanging.

In many of the cases of so-called hereditary alcoholism, the neuropathy that is inherited appears to be a manic-depressive psychosis, which manifests itself more particularly by a hypomelancholia, a hypomelancholia with waves of variable duration and recurrences. In other cases, again, the patient is clearly in a manic phase—a hypomania mild in degree—in which the excitement and lack of inhibition are potent factors. In other cases, again, there is the common mode of acquisition of the habit through social custom. The habit is thus often acquired in early life, and may persist, as we know, indefinitely; but that a pre-existing or inherited neuropathy exercises a powerful influence in the production of alcoholic abuse, is exceedingly probable.

The phenomena of an ordinary attack of alcoholic intoxication clearly illustrate the action of the poison. After a given amount of alcohol, varying according to the individual, has been ingested, there ensue first the general effects of stimulation. The heart drives an increased amount of blood through the brain, and the drug itself appears to have a specific action on the cortical neurones alike pleasurable and exciting. If the reaction time be tested, it is found to be noticeably lengthened. Very soon, too, especially if the amount ingested has been large, it is noted that the individual has a difficulty both of apprehension and comprehension, and this difficulty is an increasing one. The mental processes are distinctly retarded, and there is at the same time a diminution of inhibition; there is an increased elimination of impulses of various kinds. There

is an increased flow of ideas, of ideas with motor elements, for the patient is animated, gesticulates, moves about. There is also an increased flow of words; the subject becomes talkative, tells stories, becomes reminiscent, jests, puns, rhymes, breaks into song. He is buoyant and happy, sad and tearful; or, he is sexually excited; motor disturbances become more pronounced and exaggerated gestures, incoördinated movements, language boastful, profane, obscene, or maudlin characterize the picture. The mental action becomes more and more disturbed and retarded, apprehension and comprehension become more and more obscured, the phrases become incoherent, the words mere jargon, and the patient finally lapses into unconsciousness.

The above picture outlines, in brief, the action of an agent alike stimulating and depressing. The details, of course, vary greatly with the personality of the subject. The stimulating effects are short-lived and transient while the depression of function is more lasting. The stimulating effects, as regards the physical functions, more especially on the circulatory apparatus and of small doses on digestion, cannot, perhaps, be questioned, but there can be no doubt that even small doses increase the difficulty of intellectual labor.

CHRONIC ALCOHOLISM

The long-continued excessive use of alcohol leads to certain changes both mental and physical. The chronic alcoholic suffers sooner or later from a diminution of ability to work. He no longer has the former capacity for continued application, and, in addition, the quality of his work shows unmistakable deterioration. He also finds it difficult and later impossible to take up new subjects, new ideas, or to learn new methods. His mental horizon becomes narrowed and contracted. He remains in his accustomed channels of thought and action.

He learns with difficulty, forgets readily. His memory and judgment alike become impaired. He invariably fails to realize his own condition. The admonitions of relatives and friends are misunderstood and finally resented. He denies that he is drinking or that he is drinking too much. He is drinking just what is right; no one need tell him, he knows; others should mind their own business, etc., etc. Soon he develops ideas of being injured, unduly interfered with, annoyed, oppressed, and even persecuted by those about him. He is emotionally irritable, restless, and unreliable. He forgets his engagements or is so intoxicated that he is unable to fulfil them. He loses his sense of the proprieties and decencies. Shame, sense of duty, and obligation alike become blunted. Love of wife, child, or parent gives place to indifference, to neglect, or, it may be, to dislike. The mental impairment becomes general, and the patient may remain in this condition, sometimes better, sometimes worse, for years. In some cases the deterioration is progressive. The sense of injury grows more marked and may assume the form of veritable delusions; it may even be complicated by hallucinations. Frank mental disease may thus be established, and this may finally pass into a true dementia. However, this is the exception; by far the larger number of cases of chronic alcoholism remain in a condition of partial impairment only, and are mentally preserved to such a degree that their restraint on the ground of insanity is impossible. They are not insane in the legal sense; merely the sufferers from a vicious habit. It is this fact which renders the care of such patients one of extreme difficulty.

The psychic phenomena of chronic alcoholism are, as is well known, accompanied by visceral changes no less pronounced. Space will not permit us to discuss these in detail. They involve the circulatory apparatus, the digestive tract, the various glands, the brain, and peripheral nerves. The heart is

weak, fatty, readily dilated; the pulse soft and compressible; the peripheral vessels dilated, as witness the lividity and chronic turgescence of the features of the chronic alcoholic. There is chronic gastric catarrh; the early morning vomiting of the chronic alcoholic is a familiar picture. The liver reveals cirrhosis in greater or less degree; there is also a nephritis more or less advanced.

The patient sleeps but little. He complains of headache, especially in the mornings; there is dizziness, tremor of the tongue and hands, weakness of the legs, wasting of the muscles, blunting of sensation, pain, peripheral neuritis. There is usually also a more or less marked degree of amblyopia; frequently optic neuritis and atrophy. Not infrequently, also, the picture is complicated by epilepsy.

The forms of frank mental disease which result from alcohol consist of alcoholic delirium (*delirium tremens*), alcoholic confusion, alcoholic dementia. It is to alcoholic delirium that we will first turn our attention.

ALCOHOLIC DELIRIUM

(*Delirium Tremens*)

Alcoholic delirium ordinarily occurs in a person already addicted to alcohol. An unwonted excess, in which the usual amounts are greatly exceeded, may be the direct exciting cause; on the other hand, the sudden withdrawal of the accustomed stimulant may lead directly to the outbreak of symptoms. Alcoholic subjects, also, are exceedingly vulnerable to shock, and a trauma, such as a broken leg, a severe fall, sudden fright, sudden fatigue, may prove an exciting cause. It is known also that such persons become delirious rather readily when they are attacked by some infection, such as pneumonia, erysipelas, rheumatism. That an alcoholic or neuropathic heredity predisposes to the attacks is, of course, to be expected.

Frequently prodromata are observed extending over several days, sometimes a week or longer. The patient is irritable, depressed, and nervous, starting at the least sound. He has precordial distress, headache, dizziness, and sleeplessness. When sleep does occur it is for short periods only, and is disturbed by dreams and nightmares. His hands, his lips, his tongue tremble more than ever; even his speech may be disturbed. Finally, the delirium supervenes.

This delirium presents the symptom group common to all of the deliria (see pp. 34, *et seq.*). It is exceedingly active, and is characterized by the fact that hallucinations of vision are exceedingly prominent. Hallucinations of hearing, and apparently of the other senses, are also present, but the hallucinations of vision are very numerous, appear to be very vivid, terrifying, and phantastic. The patient sees serpents, frightful creatures, ominous and threatening. The auditory hallucinations are alike painful, while the delusive ideas, as betrayed by the speech and action of the patient, are equally terrible and distressing, and fully justify the expression of "the horrors" often applied by lay persons to the condition. The patient is very restless, struggles with or tries to escape from his enemies. A coarse tremor involves not only the face, tongue, and hands, but also the limbs and trunk. The confusion is profound, the patient has numerous illusions of the persons and objects about him which add to his terror. Sometimes, again, he seems to be entirely oblivious to his environment. Consciousness is in such case greatly obscured; at other times the patient can be recalled to himself for short periods of time and by persistent effort. Sleep is practically abolished unless secured by medicinal means. Sometimes, too, muscular twitchings or frank convulsive seizures are added to the picture. The general physical condition is one of exhaustion. The face

is relaxed, the tongue heavily coated, the lips and teeth covered with sordes. The body is covered with a sticky sweat; the pulse is small, feeble, accelerated, and sometimes irregular; the heart's action is weak. The temperature is normal unless complications, such as bronchitis, nephritis, or pneumonia, are present. The urine is usually much diminished in amount and concentrated.

The duration of an attack of delirium tremens may be very short; *e. g.*, twenty-four to forty-eight hours; more frequently it extends over several days, and sometimes persists in a less active form for a week or more. Not infrequently it subsides after a sound sleep. Sometimes the active delirium grows less but the attack does not disappear, and the patient passes into a more or less prolonged period of confusion.

The great majority of cases recover, though now and then death occurs from exhaustion, from pneumonia, from nephritis, or from failure of the overtaxed and dilated heart.

ALCOHOLIC CONFUSION

(Alcoholic Confusional Insanity)

Alcoholic confusion may present itself in two forms: first, in the form of a confusion not differing in its symptoms from that of confusion in general, and, second, in a form in which the delusions assume a paranoid character.

The first form may have its origin in an attack of delirium tremens which has not entirely subsided, and which has passed into a more or less persistent confusion. Not infrequently this is the case when the patient has suffered from repeated attacks of alcoholic delirium. In other cases, again, the confusion makes its appearance without a preceding delirium; thus a chronic alcoholic suffers more than usually from headaches, more than usually from insomnia. He is more irritable than

before; he is more nervous, fearful, and depressed, and his mental operations are more difficult. Gradually, though sometimes rapidly, hallucinations make their appearance and with them terrifying delusions. The picture presented is that of an active confusion which never attains the height of a delirium. The visual hallucinations may be less prominent; it is the auditory hallucinations which are especially marked. They are, as in the delirium, painful and distressing. The confusion gradually becomes less active and persists in a subacute form for a long time, usually for many months. As a rule, it finally subsides, though it leaves the patient quite frequently with some mental impairment. Occasionally it terminates in a more or less marked dementia. However, especially in the younger individuals, the recovery from the attack may be remarkably good, the patient becoming to all intents and purposes well.

The prognosis of an attack of alcoholic confusional insanity is bad in proportion to the degree and duration of the preceding alcoholism and the age of the patient. The presence of chronic alcoholic changes in the tissues is here a factor of moment. If the preceding alcoholism has not been of long duration, if tissue changes have not yet become established, and if the patient is still relatively young, has not yet attained middle age or the senile period, the degree of recovery that may ensue is sometimes very great.

In connection with alcoholic multiple neuritis, Korsakow many years ago described a condition of confusion which was characterized, especially by fictitious memories, by a marked tendency to the fabrication of events and occurrences of all kinds. There is here a general impairment of memory, and apparently there are gross lacunar defects which are filled in automatically and spontaneously by the patient. This condition is not necessarily associated with multiple neuritis, but

may exist in the absence of the latter. The so-called Korsakow's psychosis may have its origin in the course of an ordinary alcoholic confusion. Frequently it occurs after the latter has existed for some time; in other cases it occurs after alcoholic neuritis has been established for some time. There is no good reason for regarding it other than an alcoholic, *i. e.*, a toxic, post-alcoholic, confusion.

ALCOHOLIC PARANOIA

As already pointed out in the consideration of chronic alcoholism, the patient suffering from chronic alcoholism not infrequently develops a sense of injury, a feeling that the persons who are about him and who quite naturally admonish, chide, and try to influence or restrain him, are opposed to him, are unfriendly. Finally, true persecutory ideas may develop and not infrequently the picture of a paranoia is presented. It is exceedingly probable, however, that a paranoia does not develop save in a predisposed subject; *i. e.*, in a patient who already has the paranoiac make-up or constitution. Again, there is danger here also of confusing with alcoholism a paranoia which has existed previously, and in which the picture presented by the paranoiac has been modified by a subsequently acquired alcoholism. Under any circumstances the paranoid nature of the symptoms is very striking. The patient suffers from numerous hallucinations of hearing, vision, taste, smell, and of bodily and visceral sensations. At the same time, delusions of persecution make their appearance. The patient may, as in ordinary paranoia, speak of holes in the wall, of the house being wired, of his being annoyed and persecuted in various ways. Quite frequently he believes that there is poison in his food, that poisonous gases, foul smells, and stenches are in some way put into his room.

There is one delusion, however, that occurs in alcoholic paranoia with great frequency, and which, when met with, is looked upon as of almost diagnostic import, and that is the delusion of marital infidelity. Sooner or later the husband believes that his wife is unfaithful, and at times this conviction becomes so powerful that it leads to homicide; it is the wife, however, and not the supposed paramour, who is slain. Indeed, the patient's notion as to the persons with whom his wife is having improper relations is usually very vague. He commonly speaks of them as "men," less frequently by name or other distinctive designation.

The frequency of the delusion of marital infidelity is such as to suggest that there are special reasons for its appearance. The truth probably lies in the fact, first, that the alcoholic suffers from a depression of his sexual function, which becomes more marked in proportion to the degree and the duration of the alcoholic poisoning. He becomes both indifferent and more or less incompetent. Further, the chronic alcoholic, bestialized and brutal, is hardly received willingly by the wife; indeed, the latter frequently, upon some pretext or other, denies her husband, avoids an act, the consequences of which may only add to the misery and unhappiness of a situation already difficult to bear. In addition, we must remember that the attitude of the wife, because of her constant remonstrances, pleadings, and reproaches, is already construed as inimical. It is hardly surprising, therefore, that the patient sooner or later conceives the idea that his wife has other lovers. Frequently, too, he combines this idea with the belief that she is trying to get rid of him and is putting poison in his food. His statements in this respect are usually such as to leave no doubt that he is suffering from marked hallucinations and illusions of taste. Associated with these there may be vivid hallucina-

tions of sight and hearing. He may see men hovering or concealed about the house or may hear their footsteps, signals, or messages. He may search for them at night, candle in hand, under the bed and in the closets.

As in ordinary paranoia, the patient's orientation, his general appreciation of his environment, may be unimpaired, and in his relations with others than the members of his family or those with whom he comes in immediate contact he may betray little of his really serious condition. Later, however, reticence and restraint give way, and he talks freely and insistently of his troubles. His sleep is of course greatly disturbed, his bodily nutrition fails, and he loses in weight. At the same time he may not, and frequently does not, present the gross physical signs of alcoholism to the degree in which they are found in other alcoholic patients. Again, the withdrawal of alcohol is not followed by the disappearance of the delusions. As in ordinary paranoia, the latter are fixed and persistent. Long after the patient, as in the prison or the asylum, has had no access to alcohol, the belief in the unfaithfulness of the wife and that she tried to poison him remains unshaken. As the case continues, expansion may become manifest. He conceives the idea that he has never been properly appreciated or understood, that he has never had a chance, that he is really very able, that he is really a person of consequence and importance. Rarely, however, do his ideas assume a definite form, as in ordinary paranoia. On the whole, expansion in alcoholic paranoia is neither marked nor characteristic.

The prognosis of an alcoholic paranoia is very unfavorable. The physical signs, due to the chronic intoxication, may of course become less marked, and the general health may improve under institution care, but, as already stated, the paranoid ideas and attitude persist.

ALCOHOLIC DEMENTIA

Mental impairment, more or less marked in degree, may be the result of long-continued chronic alcoholism, may ensue after severe and repeated attacks of alcoholic delirium, or after a prolonged attack of alcoholic confusion. As in other forms of dementia, there is loss of memory and an impairment of the mental faculties generally. The blunting of the finer feelings, the sense of shame, of the proprieties, of the affections, already present in the chronic alcoholic, is more pronounced here. If it comes on in the course of chronic alcoholism it is progressive; hallucinations, confusion, delusive ideas complicate the picture. The deterioration gradually becomes more and more pronounced. As in dementia from other causes, the loss of memory grows deeper, until it involves all periods of the patient's life. Loss of will and loss of self-control are progressive. The patient is indifferent to his person, soils himself. Incoherence, paucity and feebleness of thought, and, finally, mindlessness, and, it may be, stupor, complete the picture.

That this picture should suggest paresis, or, when occurring in older individuals, should suggest senile dementia, is not surprising. From paresis the history of the case and the absence of the physical signs—*i. e.*, of the Argyll-Robertson pupil, of inequality of pupils, of tremor of the lips and tongue, of the atactic speech, of the anomalies of the tendon reactions—serve to make the distinction. A serological examination of the blood and cerebrospinal fluid may also be made (see section on Paresis), though the clinical examination, as a rule, abundantly suffices. The distinction from senile dementia and from dementia due to other causes is again to be based upon the history and upon the very evident signs of alcoholism and associated visceral symptoms. In practice but little difficulty is experienced. It was at one time the habit to speak loosely of alcoholic dementia as

alcoholic paresis, but the expression is misleading and has no justification.

A correct diagnosis is important, because alcoholic dementia presents in some cases a favorable prognosis. Nature is very kind, and it is remarkable how great a degree of recovery sometimes ensues in an apparently hopeless case after the alcohol has been long discontinued. Indeed it may be said in general that, if the visceral changes are not pronounced, some degree of recovery may usually be expected. Sometimes this is decided and may approximate the normal; in other cases, again, a persistent mental impairment, a feebleness of memory, and inability for sustained mental effort remain. In others, again, there may be a tendency to mild confusion from slight exhaustion, and, perhaps, to a persistence of auditory hallucinations. In the unfavorable cases, cases in which permanent damage has been done to the viscera, and especially to the blood-vessels and membranes of the brain and to the brain tissue itself, little or no improvement may ensue and the dementia may persist in a profound degree until death.

PLUMBISM AND THE INSANITIES DUE TO LEAD

Chronic lead poisoning, like alcoholic poisoning, induces disturbances of function belonging to the first and fifth groups of our classification. Lead poisoning is not met with as frequently in the public clinics as formerly, and this is also true of the cases observed in private practice. It is also a remarkable fact that, of the cases of lead poisoning considered as a whole, the lead insanities form but a small percentage. Lead insanities are, therefore, rare. They are very interesting, however, because of the analogies and resemblances which they bear to the alcoholic insanities, and because they illustrate the general truth, already pointed out, that there is a general identity of action of the various poisons. Lead poisoning affects the organism as

a whole, but, as is well known, it usually assumes well-marked clinical forms; namely, that of lead colic, lead paralysis with its double wrist drop, lead rheumatism or arthralgia, and lead encephalopathy. Occasionally the toxic effects remain general, and there is then a symptom group presented suggesting a peripheral tabes, *i. e.*, a widely diffused peripheral neuritis with changes in the optic nerves; one such case has been observed by the writer; in another case of general lead poisoning the patient presented a hysteroneurasthenic symptom-group without definite physical signs. Cases with diffuse and general symptoms only are, however, exceedingly rare, but they serve to accentuate the fact of the general toxic action of the lead, an action which is probably present in the classical clinical forms, but does not usually attract attention, or at least is not usually sought for.

Lead insanities, in such cases as the writer has observed, are not attended by lead palsies and lead colic, though sometimes a history of lead colic can be elicited. It would seem as though the insanity in a given case were the result of the general lead toxemia, though a local effect upon the brain, its vessels and membranes, cannot be excluded.

The mental disorder most frequently observed is that of delirium. As a rule, it is preceded by headache, marked insomnia, and frightful dreams. Tinnitus, flashes of light, slowness of mental action, and depression also make their appearance. Finally, delirium sets in and may be intense in degree. The hallucinations are exceedingly painful and terrifying, and, very curiously, as in alcoholic delirium, visual hallucinations predominate. The patient sees terrible and menacing forms and objects. The resemblance to delirium tremens is still further increased by the presence of tremor, which may be very marked. The restlessness is very great and severe exhaus-

tion may occur. Sometimes stupor and coma supervene. At times epileptiform convulsions make their appearance. It is rather suggestive, also, that amaurosis not infrequently follows an attack of lead delirium, and the query arises whether the visual hallucinations bear any relation to the changes in the optic nerve. The urine is usually scanty and concentrated and may contain albumin.

The delirium may last for several days, rarely does it extend over a week or two. Sometimes its progress is interrupted; at times there are remissions followed by recurrences. In cases in which the intoxication has not been profound, recovery ensues; in other cases a fatal termination is not unusual; this result followed in three of the cases under the writer's observation.

Chronic lead poisoning may lead to symptoms less acute in character. There may be mental depression with mental weakness, featured now and then by confusion, episodes of delirium, or epileptiform attacks. In one instance observed by the writer, in which both auditory and visual hallucinations were prominent, the delusions assumed a distinctly paranoid character; the patient was persecutory as regards his family and made charges against the chastity of his wife. There was here a suggestive resemblance to alcoholic paranoia. Such cases must be regarded as excessively rare.

In another group of cases, the lead poisoning results in a dementia. Thus, dementia may supervene upon an attack of lead delirium or may follow a more or less prolonged and chronic lead poisoning, in which the history of delirious episodes and epileptic seizures is not infrequent. The symptom-group is that of dementia ordinarily. There is a more or less grave impairment of memory and of the other mental faculties; a progressive deterioration of habits and conduct, of will-power, self-control, speech and thought, until a decided or profound mental loss is established.

Lead dementia offers in some cases a favorable prognosis; favorable provided the intoxication has not been too long continued. In this respect it resembles alcohol. If the poisoning has been long continued, however, and if there be reason to think that organic changes, as instanced by degeneration of the optic nerve, have supervened in the nerve-centers, the prognosis is proportionately unfavorable. On the whole, the prognosis of lead dementia is much more unfavorable than that of alcoholic dementia.

MORPHINISM

The habit of using opium or morphia has its origin mainly in the employment of the drug for the relief of pain. The vicious practice of opium smoking brings to our hospitals and clinics but few patients; occasionally, however, we find in the prisons persons who have been opium smokers, and who, deprived of the drug by reason of their confinement, usually suffer very keenly, especially at first. Ordinarily, however, the habit is acquired, as just stated, in the use of the drug for the relief of pain. That laudanum or that paregoric will stop pain is known to every layman, and that some persons should have recourse to them now and then, or perhaps habitually, is not surprising. Women suffering from pain at the menstrual epoch, and finding that a few drops of laudanum or a few teaspoonfuls of paregoric give relief, may gradually get into the habit of using these medicines regularly at the menstrual periods; little by little the patient begins to use them also in the intervals on some pretext or other; she feels weak, cannot do her work, feels a craving for the drug, and thus gradually the habit of taking laudanum or paregoric is established. Much more frequently, the patient is one who has experienced the prompt and pleasurable relief given by a hypodermic injection of morphia. The physician is sent for again and per-

haps repeatedly. The latter, knowing the danger of the formation of a habit, finally cautions the patient, refuses to comply, and insists that the pain, if present, be relieved by other means. Under these circumstances the patient frequently succeeds in securing a syringe and also a supply of the drug. Tolerance is quickly established, and the dose is rapidly increased until very large amounts may be taken—ten, twelve or more grains in the twenty-four hours. It is very difficult to get accurate information as to the amounts; patients habitually understate it, and frequently they do not know how much they take. Sometimes they procure it, not in the form of tablets, but in dram bottles of the powder, and freely help themselves.

It should be added that, as in the case of alcohol, the formation of the habit is greatly favored by the existence of depression or of recurrent depressed mental states. In many patients there is a frank neuropathy. We must remember that in the normal individual there is little risk in the production of a habit when the drug is administered by a physician. The normal individual, having been relieved of his pain, has no desire for a repetition of the dose.

The symptoms of chronic morphia poisoning are both mental and physical. The patient betrays a loss of vigor, an impairment of the power to do his work; his energy and aptitude alike are diminished. His will-power is lessened and in his thoughts and acts he reveals indifference. His emotions become blunted and there is a loss of the sense of responsibility. His character undergoes marked deterioration. He does not hesitate to lie, to practice deception, especially if by the latter he can secure a supply of his coveted stimulant; nor does he hesitate to commit theft if it enable him to achieve this object.

The memory likewise becomes impaired and the intellectual

faculties, as a whole, betray a depression of function. There is inertia and torpor, which may be very marked; at the same time the patient is irritable, especially during the intervals between the doses of his drug or when he has been deprived of it for a longer period than usual. Finally, his sleep is much impaired; quite commonly he cannot sleep until he has had his morphia. Frequently, too, he is hallucinatory while the sleep is coming on.

When, in making a physical examination, we handle the limbs of the patient, we note that he flinches; there is a more or less marked hyperesthesia of the skin of the extremities. Sometimes the patient describes paresthesias; more rarely does the normal sensibility seem to be diminished. There is marked muscular weakness, together with tremor and loss of tone. The reflexes betray no characteristic change; sometimes they are exaggerated, especially during the nervous and excited periods; sometimes they are diminished.

The nutrition of the patient is greatly impaired. The superficial fat disappears; the skin is yellow, relaxed, and dry. Sometimes, when the drug has been used for many years, the appearance and the mental state suggest that of a person who is aging prematurely. If we examine the skin closely, we often find numerous fine scars of hypodermic injections; sometimes the scars of pustules, local suppuration from infected injections, or furuncles may be noted.

The mouth and throat are dry. The tongue is frequently coated. The appetite is greatly diminished; especially is there a dislike for meats. Digestion is delayed and there is marked constipation. The circulation is much depressed; cardiac asthenia is marked, and, not infrequently, the patient suffers from palpitation. The extremities are cold. There is a greatly diminished thirst and the urine is much diminished in amount.

Menstruation may become scanty or may be suspended. If the use of the drug continues for a long time, weakness and exhaustion may become profound and death may ensue, either from some visceral complication, such as a gastro-intestinal disturbance, a diarrhea, a dysentery, or some infection of the respiratory tract, or, it may be, from heart failure.

Very interesting and very important symptoms ensue in a case of morphia habit when the poison is withdrawn. These vary greatly in accordance with the gradual or abrupt character of the withdrawal. The special point of importance to bear in mind is that they are never absent if withdrawal of the poison is actually being accomplished. It is the custom of the writer, for reasons which will soon become apparent, to withdraw the drug gradually, *i. e.*, by a progressive diminution of the dose. Just as soon as the amount given falls below that to which the patient is accustomed, restlessness makes its appearance. This restlessness may become very marked, and is always accompanied by more or less insomnia. The patient also yawns a great deal or sneezes, complains perhaps of having caught cold, or perhaps has an attack of difficult respiration, simulating asthma. In addition to restlessness, the patient manifests signs of fear, complains of a sense of oppression, declares himself dissatisfied with the treatment and insists upon going home. Involuntary movements of the legs and arms also make their appearance, the limbs being thrown about the bed. At times this is merely due to restlessness; at other times distinct involuntary jerkings make their appearance. Intention tremor also becomes evident. When, for instance, the patient attempts to pick up a glass of water it is noticed that he trembles decidedly. Sometimes, instead of an asthmatic attack, all the symptoms referable to a cold in the head or a spasmodic cough may make their appearance. Sometimes vesical tenesmus is

noted. Palpitation of the heart may also be evident, or the patient may complain of fluttering sensations in the precordia.

If the withdrawal be abrupt and complete, there appears, after a few hours, a feeling of great weakness and fatigue. The patient is unable to stand or to move about. He trembles from exhaustion and his body is bathed in sweat. There is a sense of sinking and oppression in the epigastrium, and very frequently gastric and abdominal pains, accompanied by nausea, vomiting, and profuse diarrhea. The heart's action becomes weak, the pulse rapid, the extremities cold. The patient is greatly agitated and disturbed, moans or cries out, and very frequently becomes confused or delirious. Hallucinations of hearing and sight, painful in character, together with distressing and fearful delusions, make their appearance. Occasionally serious attacks of heart failure are observed; sometimes, though rarely, there are convulsive seizures. Not infrequently the patient passes into a collapse, and, if the case be one of years' standing, with probable changes in the heart muscle and nerve-centers, there is serious danger of death. A prompt recourse to morphia will usually bring about an abatement, and, in many cases, a disappearance of the alarming physical signs. The mental symptoms, however, if once established, tend to persist.

The mental symptoms resulting from morphia withdrawal assume the form most frequently of a very active confusion. The intensity of the symptoms usually falls below that of a delirium. Occasionally, however, the onset is that of a delirium which soon passes into an active confusion. During the most disturbed period hallucinations of vision may be prominent, but later those of hearing predominate.

The mental symptoms sometimes arise when the morphia

withdrawal has not been complete and abrupt, but has, notwithstanding, been too rapid. It is exceedingly probable that the long-continued ingestion of the morphia gradually results in the production of an antitoxin, so that little by little the patient becomes more and more tolerant of the drug. Indeed, this tolerance, or relative immunity, which at times is extraordinary, can be explained on no other ground. Hirschlaaff has demonstrated the presence of such an antitoxic principle experimentally in animals. It would seem that the symptoms arising during the withdrawal of the drug are largely due to the unantagonized action of the accumulated antitoxin; the vomiting, the diarrhea, the sweating can only be regarded as efforts on the part of nature at elimination. Similarly, it is extremely probable that the nervous disturbances, the delirium itself, are the result of the now unopposed action of this antibody upon the nerve-centers. It follows, as a matter of necessity, that with the withdrawal of the morphia a definite group of symptoms must make its appearance, and in exact proportion and intensity to the withdrawal of the morphia. It stands to reason, therefore, that if none of these symptoms is present, and if the patient continues comfortable and in good spirits, sleeps well, and is contented with his surroundings, he is obtaining the drug surreptitiously. It should be remembered that even under very gradual withdrawal some of the symptoms mentioned above make their appearance, and may, indeed, become so marked as to necessitate for a time a return to a larger quantity of the drug. No picture is more alarming than that often presented by morphia patients in the stage of withdrawal, especially if the depression produced by the vomiting and diarrhea be accompanied by mental confusion and delirium. Unfortunately the mental symptoms, in spite of all that may be done, often persist for a long time, not only

for days but for many weeks. Eventually, however, they fade and disappear.

In summing up the mental phenomena resulting from chronic morphia poisoning, we may say, first, that the latter leads to a mental enfeeblement somewhat resembling alcoholic dementia, and second, that its withdrawal, probably through the action of an antitoxin, may be followed by delirium or confusion, these symptom-groups again suggesting those occurring in the course of alcoholism.

COCAINISM

Cocainism is now and then an indirect outgrowth of nasal surgery. The patient learns that the physician executes certain procedures, performs various operations upon the nose after its application. The application not only renders the area to which the drug is applied insensitive but is also followed by a pleasurable sense of exhilaration. The patient may succeed in securing some of the solution himself, and may begin his abuse of the drug by applying it with pledgets of cotton to the nose. Soon, however, he prefers to swallow some of the solution, and a little later tries to procure the alkaloid in bulk.

Another method in which the habit of using cocaine is acquired is in connection with the use of morphia. Morphia users frequently learn that they can lessen the drowsiness and somnolence of the morphia by taking cocaine. Some of them try to cut down the morphia by adding cocaine, and end by acquiring the cocaine habit as well.

A knowledge of the pleasurable effects of cocaine is widely diffused among the lower classes, and, strange as it may seem, especially in the tenderloin and slums. Here it is not infrequent to find it used, and generally by persons who also use other intoxicants.

The symptoms of a full dose of cocaine consist especially in a marked general excitement, in a sense of exhilaration and intoxication. The patient is restless and agitated. He cannot keep still, he is always changing his position, getting up, sitting down, going from one chair to another, leaving the room and coming back; often, too, he talks incessantly; frequently he complains of tingling in the extremities or of ringing in the ears. Usually there is pallor of the face, a small rapid pulse, dilatation of the pupils, sweating, coldness of the hands and feet, and occasional nausea.

After each successive dose the patient feels stimulated; he experiences an imperative need for activity, a pleasurable sense of well-being. Sooner or later, however, this gives way to depression with restlessness. As in the case of the other poisons, he gradually becomes unable to do his work; his will-power and his memory become impaired. He is weak and irritable, easily angered, unreliable and forgetful. Like the morphinist, he will lie, steal, adopt any expedient, go to any extreme to obtain the drug. More alert than the morphinist, he is often successful, and conceals both drug and syringe in the most unexpected places. In cases in which the habit has been well established, there is, as in the case of chronic alcoholism and morphinism, a more or less marked impairment of energy and will power, a lack of purpose and concentration, and an indifference to obligations and responsibilities. The patient's general efficiency becomes greatly reduced and finally lost.

When the drug has been taken in large quantities and for a long time, more pronounced mental symptoms may, as in other toxic states, make their appearance. Just as in the case of alcohol and morphia, a more or less persistent state of confusion—a confusional insanity—may become established. Under these circumstances, the patient commonly suffers from hal-

lucinations, more particularly from hallucinations referred to the surface of the skin, especially of the extremities. He complains of itching, crawling, sticking, and biting sensations. Sometimes he believes that his body, his room, his bed are infested by fleas or some other insect. He is continually wiping, brushing, or picking them off his person. Indeed, so common is this symptom that it is sometimes spoken of as "having the cocaine bug." Hallucination of sight, of hearing, of taste and smell may also be present in greater or less degree, but the tactile hallucinations are the most prominent and striking. However, as in alcoholism, the patient may see curious animals, shapes and phantasms which agitate and move before him. The hallucinations of hearing may consist of whistlings, ringings, inarticulate cries, or words. Associated with his hallucinations, the patient may entertain painful and depressive delusions. Like the alcoholic, he may evolve the delusion of marital infidelity, but, unlike the alcoholic, he is not actively disturbed by it. His sleep is much broken. Each dose of cocaine prevents his sleeping; it is only after access to the drug has been cut off that the patient sleeps, and then he may sleep excessively.

The general nutrition is poor. The patient looks aged and sallow. His face is expressionless and his movements betray his bodily weakness. His reflexes are usually somewhat exaggerated. There is tremor of the tongue, and, as already stated, dilatation of the pupils. Exertion readily increases the tachycardia or brings on a frank attack of palpitation with dyspnea and faintness. Like the alcoholic, he is sexually indifferent and impaired.

Long-continued poisoning by cocaine results in a more or less grave depression of nutrition. The mental weakness may become more and more pronounced, until a condition analogous

to and resembling alcoholic dementia is established. One such case, which the writer saw a number of times in consultation, passed first through a typical confusion, gradually became more and more mindless, and finally died of exhaustion. Cases of such severity are, however, the exception. Quite commonly it is found that the withdrawal of the cocaine is followed by a more or less rapid amelioration and recovery. Usually the cocaine can be withdrawn at once and without any risk; there is here much less danger of inducing delirium and confusion than in the case of morphia. If confirmed mental symptoms are present, however, these may persist for a variable period after the drug has been discontinued.

Not infrequently we meet with patients who are alike the victims of the alcoholic, the morphia, and the cocaine habits. Such persons usually begin by abusing alcohol; then attempt to lessen the amount of alcohol required or to combat the insomnia of alcoholism by taking morphia; finally, they resort to cocaine to combat or to aid in concealing the effects of the morphia. Thus they become victims of the triple habit. In such cases the symptoms of the three poisons are commingled in varying degree. As the patient's statements are unreliable, the truth can only be elicited by isolating him, preventing access to the poisons, and observing the symptoms.

INTOXICATIONS BY CHLORAL AND OTHER DRUGS

Chloral has been so largely displaced by the newer hypnotics that chloralism is now a very infrequent condition. Suffice it to say that, like morphinism, it frequently owes its inception to a prescription by a physician, the patient renewing the prescription without the physician's knowledge or consent. Little by little the patient becomes accustomed to the drug, and soon

cannot sleep without it. It is a poison which is depressing to the heart and vasomotor apparatus. Dyspnea, vertigo, and general sense of weakness are among the symptoms likely to be present. In well-established cases there are marked nervousness, marked insomnia, and a certain degree of mental weakness, as manifested by loss of will-power and failure of memory.

In cases in which the poisoning is more pronounced, attacks of delirium may supervene which bear a marked resemblance to delirium tremens; or the patient may be mildly confused, and there may be both visceral and auditory hallucinations. The confusion is, as a rule, not active, is attended by depression, and may superficially suggest melancholia.

Other hypnotics may yield similar symptom-groups to those above described; each is, of course, featured by its own special symptoms. The application of general principles readily leads to a correct interpretation. Among the drugs to be borne in mind are trional, sulphonal, veronal, medinal, and paraldehyd. It cannot be claimed that the use of these drugs is common. They are sometimes taken by alcoholics to combat insomnia, and may thus complicate the picture. Paraldehyd is occasionally taken directly with the whisky.

3. DISORDERS OF METABOLISM

Of the disorders of metabolism, three only will merit consideration here; namely, diabetes, gout, and obesity. Other general disturbances of nutrition are considered in connection with diseases of the ductless glands and of other viscera. Some of the more recondite problems have already been discussed in connection with dementia *præcox* (see p. 131) and with manic-depressive insanity (see p. 106).

DIABETES

Diabetes is a symptom group in which, as is well known, the pancreas, the ductless glands, and the nervous system play a varied rôle. At first sight it may seem unscientific to attempt to correlate mental phenomena with an affection, the nature of which is itself as yet imperfectly understood; however, in a certain number of diabetics, nervous and mental symptoms are definitely present. The clinical facts are well known, and may be here briefly summarized.

The patient suffering from diabetes may become depressed, quiet, and easily disturbed. His capacity for intellectual labor diminishes; he becomes apathetic and indifferent, and lacks his former will-power. A mental enfeeblement simulating a dementia may become established. Speech may be imperfectly enunciated and the gait and movements uncertain. A mild confusion, with depressive and painful ideas, makes its appearance. Often the mental condition resembles melancholia and ideas of suicide are not infrequent. Occasional episodes of excitement, with accentuation of symptoms, are present, but a delirium is rare. At other times, and more frequently, the patient suffers from spells of drowsiness or frank attacks of somnolence. These may recur or may gradually or at once pass into stupor, the so-called diabetic coma.

Diabetic Coma.—Diabetic stupor or coma may appear at any time in the course of a diabetes, in the beginning, in the fully-developed period, or in the final stage of the affection. It is sometimes of sudden, sometimes of gradual, evolution. In the last-mentioned instance, certain prodromal symptoms may be present. Thus, there may be depression or unusual excitement and restlessness, physical weakness, mental exhaustion, headache, sleeplessness, and dizziness. The quantity of urine

for the twenty-four hours may, during this period, be decidedly diminished.

The attack begins quite frequently with nausea and vomiting and with a copious and watery diarrhea. Sometimes there are abdominal pains accompanied by distension of the abdomen. Usually there is a sweetish odor to the breath. The respiration is embarrassed; the inspiration is long, difficult, and deep, while the expiration is sudden and short. The pulse is regular, though usually small and rapid. Auscultation reveals no changes in the heart or lungs. The movements of respiration, normal in number at first, become diminished as the coma is established.

The onset of the coma may be preceded by a short period of excitement, agitation, cries, incoherence, purposeless movements and gestures. Soon the patient becomes quiet and torpid; soon he can no longer be roused and passes into a profound coma. The patient lies extended and inert; his face is pale, his pupils dilated, his limbs relaxed. The temperature becomes subnormal and death ensues in from a few hours to three or four days. If the attack is not severe the patient may recover, only, however, to suffer from a recurrence, perhaps repeated, and finally fatal.

For the condition of the urine, the reader is referred to textbooks upon internal medicine. Suffice it to say here, that the examination of the urine reveals the presence of acetone bodies in decided amounts, especially of B-oxybutyric acid, to which the coma is due; and diabetic coma is to be distinguished from attacks of uremia, from alcoholic intoxication, from apoplexies, by the examination of the urine. We should remember, in this connection, that in some diabetics, though infrequently, the attack is complicated by uremia. Pending the examination of the urine, the sweetish odor of the breath

and the character of the breathing may suggest the nature of the attack.

GOUT

Mental symptoms the result of gout are very rare. However, they are now and then met with, and appear to bear a relation to the sudden recession of local gouty manifestations. The mental disturbances of gout manifest themselves most frequently in an active delirium, usually of short duration and of irregular recurrence. Less often the attack consists of an active and prolonged confusion. One such patient under the writer's care presented vivid hallucinations of both sight and hearing. The visual hallucinations consisted apparently of dark objects and images; negroes were frequent; while the auditory hallucinations consisted of threatening voices, cries, and other distressing sounds. The delusions were correspondingly painful. The attack lasted, with varying periods of improvement, for about five months.

ADIPOSIS

Adiposis, ordinarily, does not present mental symptoms of consequence. However, apathy, inertia, mental weakness, and somnolence may make their appearance, especially in cases in which the adiposity is related to disease of the internal secretions. Delirious and confused states are infrequent. Notwithstanding, they are now and then met with in adiposis dolorosa. In this affection a cerebral asthenia or ready cerebral exhaustion is rarely absent. Many patients present, in addition, great irritability; this is at times so great as to be attended by a change in character and disposition. The least opposition may enrage the patient, and not infrequently she will quarrel with her neighbors in the wards to such an extent that isolation becomes imperative. Sometimes she thinks that the other

patients and the nurses are against her. The sleep is usually broken and disturbed by distressing dreams and nightmares. One of Eshner's patients was disturbed mentally to such an extent as to necessitate her commitment to an asylum. Hale White's case had two attacks of mental disturbance. Giudiceandrea has noted delusions of persecution and a true dementia.

4. THE VISCELAR DISEASES

Visceral diseases profoundly affect the organism as a whole. At times, as in Bright's disease, toxic substances are no longer eliminated and are retained in the circulation; at other times, as in malignant disease, toxic substances foreign to the organism are produced and find an entrance into the blood. Uremic coma or stupor is so common as not to merit special mention, but it serves to illustrate in a forcible way the depressive action of retained poisons upon the nervous system. There are, however, states, much less common, of delirium and confusion, occurring both in Bright's disease and other visceral affections, and these demand a brief consideration.

At the outset we realize the relative infrequency of mental disturbances, for example, in Bright's disease, and the truth is at once apparent that some added, some special factor, must be present. This exists in the pre-existing neuropathy of the patient. Surely, if the ordinary man, who is ill for months and years with Bright's disease, betrays no mental symptoms in response to the toxemia, the man in whom such symptoms do appear must be, other things equal, unusually vulnerable, and this is the case.

As in the case of other poisons acting upon the nervous system, the symptoms produced are those of delirium, confusion, and stupor; and this is true of all of the psychoses of visceral

origin. The relatively infrequent disturbances met with in Bright's disease will serve as an example.

Patients suffering from Bright's disease may manifest delirium. There are headache, hallucinations, and illusions, both auditory and visual. The patient talks confusedly, is actively disturbed, and may be much agitated. The attack may pass away or may be interrupted by convulsions or may deepen and terminate in coma. The intensity of the symptoms and the prognosis of the attack stand of course in close relation to the Bright's disease.

In other cases the disturbance assumes the form of a confusion with depression. Hallucinations are present as before. The patient may be afraid, may entertain persecutory notions, or his ideas may be vague, mystic, and difficult to follow. Now and then the symptoms resemble melancholia. The course of the attack may be interrupted by periods of exacerbation, in which the patient may be frankly delirious; at times these episodes are attended by great excitement. Again, at any time in the course of the attack, convulsions and coma may supervene.

Symptoms of delirium and confusion, mild in character, attended by depression, painful in type and superficially suggesting melancholia may make their appearance in the course of almost any of the visceral diseases, more especially, however, of the gastro-intestinal tract and of the liver. Here we have again to deal with the phenomena of auto-intoxication, frequently superimposed on a neuropathic make-up. In brief, the inference should be drawn that the existence of a delirium or of a confusion which bears no clear relation to an infection or intoxication should always excite the suspicion of visceral or other somatic disease. Quite commonly the disturbance is not attended by much, if any, excitement. This is the case, for instance, in malignant affections; *e. g.*, cancer of the stomach.

The mental disturbance in malignant disease is never active; there is never a delirium. The patient is depressed, irritable, has vague hallucinations, and often entertains persecutory ideas. The depression is marked, and, when coupled with a realization of the serious nature of the physical disease from which the patient suffers, may lead to suicide. When the confusion is profound, the patient with gastric cancer may talk of snakes or other living things in his stomach; the woman with cancer of the uterus may talk of being pregnant. Under all circumstances, it should be repeated, the previously existing neuropathy should never be lost sight of.

DISEASES OF THE DUCTLESS GLANDS

Diseases of the ductless glands merit a special consideration. Particularly is this true of the thyroid gland. Here we can distinguish the mental symptoms of hyperthyroidism, hypothyroidism, and, less clearly, of dysthyroidism.

The mental symptoms of hyperthyroidism are met with now and then in exophthalmic goiter, occasionally in the rare instances of surgical injury of the thyroid gland in which the gland or its connective tissue envelope are torn, and finally in operations in which the manipulation of the gland has forced an undue amount of secretion into the circulation. It may also occur in thyroid administration, when the patient is unduly susceptible or when the dose has been large.

The symptoms are those of a more or less active delirium. The patient suffers from hallucinations of sight and hearing and is actively disturbed. He sees faces, hears voices, suffers from distressing delusions, is very restless, and often noisy. At times the delirium attains a very high degree of intensity. It may also be attended by a decided rise of temperature.

In exophthalmic goiter, delirium is only occasionally observed.

It is rather the symptom group of a relatively mild but chronic intoxication which presents itself. Thus, the patient is commonly nervous, irritable, and excitable. Sometimes his condition suggests a mild manic state; at other times he is forgetful, indifferent, or listless, or perhaps a little depressed and suspicious. The depression may be quite marked and attended by a mild confusion, and this confusion may be interspersed by episodes of excitement or delirium. Sometimes, however, a frank delirium makes its appearance quite suddenly and without premonitory signs of moment. It happens every now and then that the symptoms of the exophthalmic goiter are moderate or but slightly and imperfectly marked and yet the mental symptoms are pronounced. Sleep, as might be predicted, is usually much disturbed and abridged, though cases are not wanting in which somnolence is noted. It is probable that the latter are cases of exophthalmic goiter, in which, for some reason or other, there is a momentary depression of function or exhaustion of the thyroid rather than a hyperthyroidism.

Thyroid delirium offers, other things equal, a favorable prognosis. Of course the thyroid intoxication may be in individual cases so massive as to lead to death. Such may be the outcome in traumatic cases or cases in which toxic doses of thyroid substance have been taken. Again, there are cases of exophthalmic goiter in which delirium supervenes, and in which a more or less chronic intoxication follows; that is, cases in which marked mental symptoms persist for an indefinite period. Such cases are every now and then committed to the asylums. Very curiously, too, we have here often to deal with cases in which, as already pointed out, the symptoms of the exophthalmic goiter, though present, are not pronounced. Doubtless a predisposition, a pre-existing neuropathy, plays here a rôle.

The mental symptoms of hypothyroidism may ensue when

the gland undergoes destruction or atrophy through some degenerative or diseased process; it may also follow a too radical surgical removal of the gland. The picture that supervenes is that of the well-known symptom group of myxedema. Here, in addition to the infiltration of the skin, the swollen features, the spade-like hands, the sausage-shaped fingers, the dryness of the skin, slowing of the pulse and subnormal temperature, mental phenomena are present in greater or less degree. There is a slowing of thought and of mental processes generally. There is difficulty of comprehension; the patient cannot follow a prolonged conversation; the memory is impaired, and, in addition, there is readiness of fatigue. The patients are slow in their movements, require an excessively long time to perform the simplest acts. As in the neurasthenic-neuropathic, the psychasthenic cases, the patient sometimes requires hours to dress, to bathe, or to attend to such elementary functions as a movement of the bowels.

Mentally the patients are heavy, dull, apathetic. At the same time, especially if pressure is put upon them in the attempt to make them hurry, they may become greatly excited and nervous. Usually they sleep a great deal; sometimes there is a pronounced somnolence. In given cases, drowsiness or sleepiness comes on in attacks; or the patient may suddenly fall asleep for varying periods of time, a true narcolepsy being present. On the other hand, though less frequently, the sleep may be both diminished and disturbed. Now and then it is observed that the patient is mildly confused; hallucinations may be present, accompanied, it may be, by distressing delusions; sometimes the patient feels that he is being ill-treated, abused, or, it may be, persecuted. Now and then the patient complains of headache, sense of pressure, faintness, or dizziness; and rarely convulsive attacks resembling epilepsy make their appearance. If the

affection remain unrecognized, and proper treatment be not instituted, the mental condition finally terminates in a dementia.

At times, and this is most important, the mental symptoms of myxedema are pronounced while the physical signs are not decided or so slightly marked as perhaps to be overlooked. In the writer's experience cases of complete, of fully developed, myxedema presenting the typical classical symptoms are rare; on the other hand, cases of incomplete myxedema are relatively frequent. In such cases the infiltration of the skin, the dryness of the hair, the slowing of the pulse may be relatively moderate or even slight and yet the mental symptoms pronounced. The importance of the recognition of early or incomplete cases of myxedema cannot be sufficiently emphasized.

Finally, there are disturbances of the thyroid gland in which the symptoms present do not enable us to classify a given case either as hyperthyroidism or hypothyroidism, and in which, notwithstanding, the functions of the gland are affected. Possibly in such cases several ductless glands are synchronously involved. That a varied symptom-group of excitement and depression, of confusion or delirium, should occasionally be present under such circumstances is not surprising. It is also a significant fact that in mental cases, as a whole, evidences of thyroid anomalies of one kind or another are relatively frequent. The examination at random of large numbers of miscellaneous cases, as, for instance, in an asylum, reveals the truth of this statement.

Diseases of the ductless glands other than the thyroid are not attended with equally well-marked symptom-groups of mental phenomena. At the same time, special disease of the pituitary—*e. g.*, excess of function, as in acromegaly, or diminution of function, as in adiposis—may be associated with unmistakable psychic symptoms. Thus, in acromegaly there may be somnolence or there may be apathy and dementia, the

latter sometimes very slight and sometimes very marked. Similar symptoms may be met with in pituitary deficiency; *e. g.*, somnolence, mental impairment or feebleness. In adrenal disease there may be depression. In disease of the pineal gland there may be, in hyperpinealism, sexual and intellectual precocity, and, probably, in hypopinealism, a failure of the corresponding functions. Perhaps it plays a rôle in paranoia originaria (see p. 332). Finally, we should bear in mind that the ductless glands form a closely related and interdependent chain, and disturbance of one of them sometimes elicits phenomena in the others. A discussion of this interesting subject would unfortunately take us too far afield. The reader is, however, referred to the rôle of the hormone of the sex glands and of the other internal secretions in dementia præcox (see p. 131), and also to the possible rôle of the latter in manic-depressive insanity (see p. 106).

5. DISEASES OF THE NERVOUS SYSTEM

The diseases of the nervous system which especially demand here a consideration are, first, the functional disorders, epilepsy, hysteria, chorea, and paralysis agitans, and, second, the organic diseases, paresis, cerebral syphilis, multiple cerebro-spinal sclerosis, arteriosclerosis, hemorrhage, embolism, thrombosis, brain tumor, brain abscess, tabes, and trauma.

A. FUNCTIONAL NERVOUS DISEASES

EPILEPSY

As is well known, many and widely differing factors enter into the etiology of epilepsy. Among these are, first, heredity; secondly, neuropathy, alcoholism, syphilis and possibly other infections in the ancestry; thirdly, causes acting directly upon the individual himself, such as intoxications, infections, trauma and gross organic disease of the brain; perhaps also disturbances

of the internal secretions. Under the caption of epilepsy we are in the habit of including many symptom groups which differ widely as to their origin and pathology. Perhaps this is not surprising when we reflect on the physiology of the brain. It would appear that the motor area of the cortex responds by convulsive attacks to both chemical and physical irritants, and, that there should be a multiplicity of causes, any one or number of which may bring about an epileptic symptom group, is perhaps just what we should have been led to expect. While a classification of the epilepsies is a matter of extreme difficulty, we can safely separate out from the great mass of cases a group in which there are present, sometimes in slight and sometimes in marked degree, the evidences of morphological arrest and deviation. Among these are anomalies in the size and shape of the skull, a high and narrow palate, anomalies of dentition, anomalies of the ears, of the digits, and of the general development. Sometimes the arrest is characterized not so much by physical signs as by a mental development distinctly subnormal. It is just in this group of cases that we find significant factors in the ancestry such as epilepsy or other neuropathy, syphilis, and alcoholism. It is in this group that we have to deal with individuals whose development has taken place in an aberrant and damaged germ plasm and in whom the epilepsy is expressive of an endogenous autotoxic disease. It is to this group that the term morphologic or essential epilepsy seems clearly applicable.

The epilepsies of other origin may, in given instances, be accompanied by mental symptoms, all more or less related to the special cause of origin, but the descriptions which follow relate only to the epilepsy of the morphologic or essential group.

The psychic manifestations of epilepsy vary very greatly. Frequently no psychic disturbance, save the loss of consciousness accompanying the attack, is noted; at times special psy-

chic symptoms are present and precede the attack; at others follow the attack, and at others still replace the attack. It is noted, furthermore, that mental deterioration ensues in long-standing cases. Finally, a careful study of the epileptic in the interparoxysmal periods frequently reveals special phenomena which distinguish him from the normal individual.

There are, of course, epileptics who, in the intervals between the seizures, are entirely normal, and are able to follow their vocations fairly well. There are others, however, and by far the greater number, who present both emotional irritability and mental impairment. These symptoms may be slight, but more frequently are very evident. Usually the epileptic has no difficulty of comprehension and his faculty of orientation is unimpaired, but we soon realize that his mental processes are distinctly slow. In keeping with this, he is commonly dull and apathetic and at the same time unduly irritable. His emotional equilibrium is readily disturbed, his inhibition is diminished, and he may be quarrelsome and easily angered; indeed, sudden outbreaks of anger from little or no cause are not infrequently observed. Further, his mental activity is distinctly diminished, and, as in other affections in which a mild dementia is becoming established, the patient learns with difficulty and lives in a comparatively limited horizon. His thoughts lose their spontaneity, are apt to pursue the beaten path; this becomes evident, both in his replies to questions and in the account which is elicited of his symptoms.

As in mental deficiency due to other causes, a more or less marked impairment of memory becomes evident as the affection progresses. It may be slight at first and may manifest itself only by an occasional forgetfulness. Later it may become more marked, until finally the history which the patient gives of himself varies from time to time and later becomes,

in part at least, clearly unreliable. Mental obtusion is further shown by the patient's inability to realize the change in his own condition. Both the seizures and the mental impairment may be growing distinctly worse, and yet the patient may answer that he is getting better. At times he seems to be afraid and depressed, and at others suspicious, and, occasionally, he may evolve persecutory ideas, usually changing and transitory; rarely a distinctly expansive attitude is noted.

The mental state of epileptics, as already indicated, differs greatly in different cases. There are some in whom the attacks exist for many years and yet in whom little if any deterioration is noted. The patients may for a long time pursue quiet and well-ordered lives. Doubt may, however, properly be entertained as to the accuracy of statements to the effect that epilepsy may not only be unattended by deterioration but may even exist in persons of unusual or phenomenal mental endowment; thus, both Cæsar and Napoleon are commonly spoken of as epileptics, and yet the suspicion that the attacks from which they suffered were really hysterical is not without justification. It is significant, also, that a certain degree of mental impairment becomes gradually and very slowly established, and the patients then remain in this impaired condition without further change. There are others still—those, it may be, in whom seizures have recurred with great frequency and great severity—in whom the deterioration is relatively rapid and progressive, and who finally become markedly demented. Profound dementia, however, such as is met with in other terminal states, is uncommon.

More interesting and more important than epileptic dementia are the episodic mental states. These consist of periods sometimes very brief, sometimes prolonged, in which the mental processes are distinctly modified or retarded, or in which the

patient is mildly or actively confused or delirious. They may immediately precede a convulsive seizure, in which case they constitute a psychic aura. They may precede the seizure by several hours, or it may be for a day or more, in which case they are spoken of as psychic prodromata. Again, they may follow a seizure, in which case they may be regarded as psychic sequelæ. Finally, the mental symptoms may constitute the entire attack and thus replace altogether the convulsive seizure. Such a case is commonly spoken of as a psychic epilepsy; sometimes as a larvated epilepsy.

If the mental symptoms manifest themselves as prodromata we observe, first, that the peculiarities ordinarily noted in the patient become accentuated. His irritability, dulness, heaviness are increased. He may become sullen, more apathetic, more quarrelsome. Sometimes a kind of psychic erethism is present, the patient becomes very excitable, not only emotionally but at times also intellectually. He may in such case be restless, talkative, and even, though rarely, expansive. Sooner or later the convulsive seizure follows.

The psychic aura when present manifests itself very frequently as a sudden fear or fright. Not infrequently, for instance, a child about to have a convulsion suddenly clings to its mother, screams, and manifests all the outward signs of an intense fright. In other cases, the patient may suddenly become excited, talk of something terrible about to happen, of ruin and destruction; or he may suddenly become stupid, unable to comprehend what is said to him or what is going on about him. At other times, he becomes suddenly agitated, passes through various automatic movements, goes, comes, runs, or performs various and sometimes bizarre acts. Sometimes the excitement is very intense, and the patient may suddenly become destructive and may make violent attacks

on the persons and objects about him. That terrifying hallucinations and delusions are present in such cases is very probable. The various forms which the psychic aura assumes are relatively short in duration; the convulsion appears and all mental manifestations cease.

Psychic manifestations are less frequent after the convulsion has occurred than before. However, dulness, apathy, mental confusion may be present in more or less marked degree. Sometimes confusion persists for several hours, especially in cases in which the seizures are very severe or occur in groups.

When the mental disturbance constitutes the entire attack, the case, as has already been stated, is spoken of as psychic or larvated epilepsy. Compared with ordinary epilepsy, purely psychic epilepsy must be regarded as very infrequent. When it occurs, the symptoms assume the form either of a confusion or a delirium. Delirium is, on the whole, the most frequent. As a rule, the attack is preceded by depression. Often there is a history of frightening dreams. The patient complains of strange sensations or of a dazed feeling. Suddenly there is an outbreak. Vivid hallucinations of sight and hearing make their appearance. The patient screams, cries out, and evidently sees terrifying objects, blood, flames, hears terrible sounds and voices, and has terrifying delusions. He struggles, makes wild attacks, frenzied efforts, and may even kill while in this condition. He is entirely oblivious of his surroundings during the seizure, and subsequently has no recollection of what has occurred. Occasionally the seizure is less pronounced. The hallucinations and delusions are less active and consciousness may not be so completely obscured.

As a rule, the duration of the attack is several hours, several days, or perhaps as much as two weeks or more. The more active the excitement, other things equal, the shorter the dura-

tion. Again, the violence of the outburst may gradually give way to a less active phase, and this is usually the case when the attack is prolonged. Sometimes the subsidence of the symptoms and the return to lucidity is rapid or even sudden; more frequently the return is gradual.

Instead of delirium, the patient may suffer from confusion. This confusion may be active or it may be slight. Again the attacks may be evanescent in their duration or excessively prolonged. In one of the cases studied by the writer, the confusion occurred in brief episodes of several minutes, apparently replacing less frequently recurring convulsive seizures. In other cases the confusion may be more pronounced and last several hours, several weeks. Occasionally it is terminal to a delirium. Finally, it may be very deep or, on the other hand, so light that the patient is merely somewhat dazed. As in the case of epileptic delirium, consciousness is lost, and when the attack is over the patient has no recollection of what has occurred.

The confusion may in given instances deepen into stupor or the latter may make its appearance suddenly. The stupor may be complete; more frequently the condition is that of an incomplete stupor, a deep confusion, in which the patient may manifest purposeless and automatic movements and gestures, or may betray in other ways evidences of a confused and hallucinatory state. As a rule such an attack lasts one or two days, though it may last a week, two weeks, or even longer.

Occasionally a nocturnal epilepsy is substituted by a psychic attack. In such instance the patient may have an outburst of terror or of a short delirium, or the attack, in rare instances, assumes the form of a somnambulism. The patient may leave his bed, walk about, and perform various complex acts of which he will subsequently have no recollection. The somnambu-

lism of epilepsy, however, is much less complete and prolonged than that met with in hysteria.

It is probable that among the mental phenomena of epilepsy we should include some forms of double consciousness. There are instances in which the patient passes into a dazed condition, in which he performs a series of complex acts, buys railroad tickets, travels, makes purchases, and conducts himself in such a way as not to attract special attention, and finally comes to himself in a distant place, without any knowledge of how he arrived there or of any intervening events. Cases of prolonged duration are, however, excessively rare, and the possibility of hysteria, of fraud, of purposive deception must always, in such instances, be borne in mind. Especially is this the case when no previous history of epilepsy, when none of the other psychic or physical manifestations or stigmata are present.

Hysteria

It may be properly questioned whether hysteria has really a place in a text-book on mental disease. However, so much misapprehension and confusion exist in regard to the subject as to necessitate a presentation of the facts. In the first place, hysteria must be clearly differentiated from the fatigue neurosis, neurasthenia, with which it has nothing in common. It may exist without the presence of a single fatigue symptom, just as it constantly exists without the presence of a single organic lesion. Again, it must be sharply differentiated from hypochondria. In the latter there is a characteristic symptom-group, appearing most frequently in men, in which the patient has an all-convincing sense of illness, the cause of which he usually refers either to his digestive tract or to his sexual organs. (See Part II, Chapter III.) Space will not permit of a consideration in this section of either gastro-intestinal or sexual hypochondria,

but, suffice it to say that there is never present a single stigma of hysteria, mental or physical.

With equal force must hysteria be differentiated from the neurasthenic-neuropathic symptom-groups, the psychasthenias, considered in Chapter VI, though the Freudian school has hopelessly confounded the two conditions. Hysteria, as a matter of fact, bears no relation to the fixed symptoms, the phobias, the indecisions, the irresistible impulses of psychasthenia, bears no relation to the special form of neuropathy presented nor to the accompanying neurasthenia. It should not be necessary to point out that the mere fact of a nervous symptom being obscure or not understood does not justify our terming it hysterical.

What then is hysteria? Space and the objects of the present volume forbid more than an allusion to the origin of the name. The latter is derived from the Greek word for uterus, *ὑστέρα* (*hystera*), and is based upon the idea of a causal relation between the uterus and the symptoms. The early Greeks believed that during a hysterical attack the uterus becomes detached from its moorings and goes wandering about the body seeking sexual satisfaction. It is interesting to note that in our own day, while the crude theory of the wandering uterus has been abandoned, ideas as to the sexual origin of hysteria have persisted. Unsatisfied passion, repressed sexual desire, unrequited love, genital irritation, and lastly, repressed memories of sexual peccadilloes in childhood have all had their advocates; and it is likewise only in relatively recent times that the idea that hysteria is dependent upon disease of the uterus or ovaries has been abandoned. Happily, however, it is no longer necessary to point out that hysteria is uninfluenced by pelvic surgery and that it occurs in the male as well as in the female.

Hysteria is an independent nervous affection. What is its

nature? If we examine its symptoms, we are at once impressed by the fact that they are of psychic origin. Thus, we discover in a patient an anesthesia. If we outline the area involved, we find that it bears no relation either to the distribution of the nerves or to the sensory representation in the spinal segments. Quite commonly the loss of sensation embraces an area covering a hand and arm like a glove, or a foot and leg like a stocking. Evidently such a loss is not in keeping with any known fact of anatomy. Finally, it may come and go, shift in distribution, or vary in intensity. The only possible inference is that such a symptom is mental, *i. e.*, psychic in origin.

The French have elaborately studied hysteria, and it is due to Charcot, his pupil Gilles de la Tourette, and their followers that we to-day possess an adequate picture of its symptomatology. The symptoms may be conveniently divided into sensory, motor, somatic, and psychic. A summary of them only can be attempted here.

The sensory symptoms consist of anesthesia, hypesthesia, and hyperesthesia or hyperalgesia. The anesthesia may present itself, as above described, as a glove-like or stocking-like anesthesia; it may involve merely a segment of a limb, when it is known as a segmental anesthesia; it may be limited to an irregular patch upon the trunk, limbs, or head, and constitute a geometric anesthesia; it may involve the entire half of the body, forming a hemianesthesia. More frequently than anesthesia, there is merely a diminution of sensation, a hypesthesia involving like areas.

Instead of a loss or partial lessening of sensation the latter may be increased; *i. e.*, there may be present a hyperesthesia or a hyperalgesia. Simple hyperesthesia may in its distribution resemble anesthesia or hypesthesia. Sometimes it is

widely spread over a limb or over one side of the body or portion of the body; for instance, over the back in traumatic cases. Most frequently, however, when the symptom is pronounced, it manifests itself in the form of isolated and oval-shaped patches of sensitiveness. These patches may be found upon any portion of the trunk or limbs, though they are most frequently met with in certain situations; more especially as a small oval area over the ribs, just below the mammary gland, so-called inframammary tenderness; as a small oval area immediately above the groin, so-called inguinal or ovarian tenderness; as small spots or areas over the spine, so-called spinal tenderness; as a small area to one or other side of the spine below the inferior angle of the scapula. Painful areas are also met with in spots no larger than the tip of the finger on the scalp; also on the mucous membrane of the buccal and nasal cavities and of the rectum and vagina.

The motor symptoms of hysteria manifest themselves in the form of paralysis, of tremor, of incoördination, of contraction, and of convulsive movements. As in the case of the sensory symptoms, the palsies bear no relation to the facts of anatomy; thus, there is never a palsy of one muscle or of a group of muscles, such as an eye-muscle or of the extensors in wrist-drop, but the paralysis involves the limb as a whole. Further, when we examine the limb, we usually find that sensation also has been lost; *i. e.*, there has been paralysis of both motion and sensation; the entire limb has been elided from consciousness. As in the case of the sensory phenomena, the mental origin of the symptom is clearly evident. The same truth is discernible in the motor phenomena other than the palsies, but these we will not pause to consider.

The somatic or visceral symptoms of hysteria consist of such

phenomena as loss of appetite, vomiting, rapid pulse, vasomotor changes, rapid breathing, cough, yawning, aphonia, retention of urine, anuria, polyuria, phantom tumor. Each and every one of these symptoms, when analyzed, reveals a psychic origin. Thus the vomiting is never attended by the signs of organic disease; there is no evidence of gastric catarrh, ulcer, malignant disease, or dilatation, nor is there any evidence of some such purely physiologic cause as pregnancy. Again the symptoms can be relieved by suggestion or perhaps conquered by massive feeding.

The psychic phenomena of hysteria are not only the underlying phenomena that stand in causal relation to all of the others, but they are the phenomena which most of all concern us here. The objective symptoms were, as already stated, adequately described by Charcot and by Gilles de la Tourette. These investigators also laid great stress upon the increased susceptibility to suggestion in hysteria, but it remained for Babinski to point out that the symptoms have their origin in suggestion, in suggestion that may arise from causes within as well as from causes without the patient. Babinski also maintains that the sensory losses of hysteria are always the outcome of inadvertently made suggestions at the time the patient is examined by the physician. He claims, for instance, that the reason hysterical hemianesthesia predominates on the left side of the body is because the physician being usually right-handed, has the brush or esthesiometer in his right hand, and naturally tests the left side of the patient's body first, thus suggesting the anesthesia which he is trying to discover. In one hundred consecutive cases of hysteria, which had not been previously examined by other physicians, he failed, with due precautions, to discover hemianesthesia. It is interesting also to add that anesthesia of the special senses, contraction of the

visual field, deafness, loss of taste and smell may also be found on the anesthetic side, doubtless due to a spreading of the suggestion of sensory loss.

Just as the symptoms of hysteria are produced by suggestion, so are they commonly removed by suggestion, and because of this fact Babinski has devised the name pithiatism (*πειω*, "I persuade," and *ἰάωματ*, "I cure"), curable by persuasion.

Hysteria, as we have seen, may be attended by physical signs which may simulate organic disease, but this simulation is imperfect, and there usually is little difficulty in making the differentiation. Thus, the palsies and the sensory losses impress us with their unreality and unessential character; there is something about the case which even to the layman suggests its real nature. Equally is this true of mental symptoms when they are present. The simulation of mental disease is grossly imperfect. At most, states of excitement suggesting delirium or confusion are met with, and here, as in the case of the physical signs, the symptoms have the appearance of something that is not genuine, of something assumed, of something voluntarily and artificially produced; in short, as possessing a factitious character.

Let us turn our attention to the hysterical paroxysm and the attendant mental phenomena. Usually the attack is preceded by a prodromal period, extending over a number of minutes, several hours, or, it may be, over a day or two. During this period the patient frequently becomes depressed, avoids the members of her household, is uncommunicative, irritable, and perhaps is angry or weeps upon slight provocation. Less frequently the patient is excited, restless, perhaps a little exuberant or even boisterous, or she may laugh and weep by turns. Less frequently still, she acts as though she had frightening visions, saw strange faces and objects. Very commonly she complains

of choking sensations, clutches at her throat, says that she cannot breathe, has headache or other distressing feelings. A picture suggesting a frank delirium is rarely observed. Sooner or later a convulsion comes on. The convulsion is attended by a tonic spasm, during which the patient may present rigidity of all of the muscles of the limbs and trunk; at times, indeed, an opisthotonus, an "arc de cercle," may be present. Soon, however, the tonic spasm is followed by clonic movements, which are much greater in extent than those seen in epilepsy and of themselves usually suggest a voluntary character. Hysterical attacks are of variable duration; some are brief, others more prolonged, and in the latter the patient may contort the body into various bizarre positions, or may make gestures and movements clearly expressive of volition and purpose. Sometimes the patient tears her clothing, dishevels her person, assumes dramatic and passionate attitudes, shrieks and weeps. Little by little she becomes quiet, submits to the ministrations of her friends, and conducts herself normally or perhaps goes to sleep.

It is characteristic of the hysterical attack that the patient does not lose consciousness, a fact that is rarely admitted by the patient, but commonly capable of convincing proof; sometimes the fact that the patient is conscious during the attack is self-evident. The patient never hurts herself and betrays by her actions or by her subsequent statements a knowledge of her environment. The sphincter control is never lost, nor is there ever any biting of the tongue as in epilepsy.

Instead of subsiding, the attack may pass into a phase in which the patient seems to hear voices, to see visions, and in which she utters disconnected phrases, is exalted, depressed, erotic, obscene. At other times, the patient appears to pass into a condition resembling somnambulism. Contrasted with a

delirium due to an infection or an intoxication, a crass difference becomes apparent. The visions which the patient sees, and which she dramatically addresses, give the bystander the impression of being assumed, not genuine. The illusions of persons and objects are often exhibited in such a way as to give rise to the same conviction. The patient, being told that a certain person is her father, dramatically calls him by a strange name, and yet a moment later betrays that she knows exactly who the designated person is. Finally, neither the incoherence nor the delusions recall those of delirium proper. Long sentences and long phrases, at all times with a rich emotional content, replace the unrelated fragments uttered in the genuine affection.

The duration of the attack is usually quite short, sometimes a few minutes, sometimes a few hours, rarely a day or more. Sometimes it merges into a confusion. A mild confusion, spoken of sometimes by German writers as a "Daemmerzustand," a twilight state, is among the rarer conditions met with. It may follow a convulsive attack or may come on independently. It is usually of short duration, a few minutes or hours; rarely it recurs with interruptions of lucid intervals for longer periods.

A hysterical attack may eventuate in a stupor; *i. e.*, in a hysterical sleep or coma. Such a stupor or sleep may come on independently, or it may recur at intervals and may simulate a narcolepsy. The sleep is of variable duration, extending from a fraction of an hour to several hours, sometimes to a day or more.

In some cases a serious and persistent mental disorder supervenes in a chronic form. Based either upon auto-suggestions, themselves the outcome of visceral sensations, or, it may be, upon suggestions received from without, the patient acquires the

belief that she is ill. She becomes introspective. Her symptoms become greatly exaggerated. She becomes self-absorbed, her craving for sympathy becomes more pronounced, and she constantly demands medical attention. She develops a memory that is painful in its minuteness, and recites and repeats with evident satisfaction the account of her various symptoms and affections, and retails with endless elaboration her experiences with various physicians and various cures. Such a patient is not happy unless she is under a physician's or surgeon's care. Sometimes the list of operations through which she has passed is appalling, and may include in one and the same case removal of the appendix, of the ovaries, of the uterus, excision of the coccyx, sewing fast one or both kidneys. Such patients are among the most difficult with which the physician has to deal.

The fact that so crass a symptom as hemianesthesia can be developed in one individual by suggestion, and that suggestion in another individual fails altogether to elicit this symptom or, indeed, any other, is proof that in the one there is pre-existing an abnormal condition which is clearly absent in the other; and this is a pathologic susceptibility to suggestion. The inference is obvious; hysteria is the expression of a neuropathy whose cardinal feature is feebleness or absence of resistance to suggestion. The neuropathic individual accepts, the normal individual repels, the suggestion. Hysteria is an inborn, an inherent neuropathy, one that depends upon the innate organization of the individual, and the symptoms of which may be developed by any incidental factor which may act as a suggestion. Further, just as the reaction of the hysterical individual to suggestion is excessive and pathologic, so is his reaction to emotional stimuli excessive and pathologic. Exaggerated emotional reaction, exaggerated emotional expression, general emotional instability, are therefore likewise features of the hysterical neuropathy.

In keeping with this fact, the hysterical individual reacts inordinately to fright, joy, annoyance, anger, disappointment, mortification, fancied slights or wrongs, shame and kindred incidents. It follows as a physiological corollary that the outward expression, the physical reaction, is excessive. Finally, hysteria is a neuropathy of degeneracy and in keeping with this fact it presents a large element of heredity. Indeed, Charcot and his pupils regarded hysteria as always inherited; all other causes, to use Charcot's expression, have merely the value of *agents provocateurs*.

The personality of the hysterical is a vulnerable one; an entire limb, one half of the body, may be elided from his consciousness; at another time a veritable cleavage of the personality may occur. As has just been stated, a hysterical seizure may eventuate in an attack of somnambulism; on the other hand, an attack of somnambulism may come on spontaneously. In this state the patient may perform automatically various acts, often complex in their nature, requiring considerable time, and bearing no relation to the occasion or to the environment, and during the performance of which the patient is, to all intents and purposes, oblivious of his surroundings. Such attacks usually terminate quite suddenly, the patient subsequently claiming to have no recollection of what has occurred. Such symptoms, when genuine, can only be accounted for on the basis of a psychic dissociation. One group of ideas, as in the somnambulism of hypnosis, occupies the field of consciousness to the complete exclusion of all others; *i. e.*, there is a separation of the personality into two parts which have no relation with each other. (See Part III, Chapter I.)

The cleavage of the personality may be still more complete, so that the patient for long periods of time acts exclusively under the influence of one group of ideas and associations, and, at

others, of another group, and conduct himself as though he were possessed of two personalities. While in one state he has no knowledge or recollection of his actions, thoughts, and experiences in the other. One morning a young physician left his office to go to a hospital, with the outdoor service of which he was connected. He did not appear at the clinic, nor was anything heard of him for two days. He suddenly came to himself on a country road, many miles from his home. He had no idea of where he was, or how he had gotten to the place at which he found himself. He had evidently purchased a ticket, boarded a train, gone to a hotel, paid for food and lodging; he had also apparently lost his straw hat, for, when he came to himself, he was wearing a cap; the latter was new, and it may be properly inferred that he had purchased it. Evidently he had committed no act which had been unusual, and nothing in his demeanor had attracted attention. The case of Ansell Bourne, reported by William James, is even more interesting, because the change to the abnormal personality was of longer duration and more complete. The patient was an itinerant preacher, who disappeared one morning from his home in Providence and reappeared two months later in Norristown, where, under a new name, he had conducted a small stationery store. He came to himself suddenly in a fright and asked to know where he was. The case studied by Morton Prince, and the story of which is related by the patient herself, reveals a still more remarkable instance of a dissociated or disintegrated personality. Regarding some of the reported cases, however, a legitimate doubt of their genuineness may be entertained. Hysterical people often like to be interesting, and enjoy occupying the center of the stage. That they practice gross deceptions in order to secure the sympathy and attention which they crave, every hospital physician knows. That they

will simulate anuria, rise of temperature, or what not, that they will undergo severe procedures, face painful operations, in order to achieve this end is a matter of common knowledge. That they may lie concerning so interesting a phenomenon as double personality is extremely probable. Further, human motive is sometimes very obscure, and the reason may not always be apparent why a man should conduct himself in a manner suggesting that there is a motive for concealing himself or possibly for making an entirely new start in life under entirely new conditions. Unfortunately, too, it is not always possible to separate truth from falsehood, and in no case is this more difficult than in hysteria. The remarkable experience of Ernest Hart with some of Charcot's patients may be recalled by some of my older readers.

In conclusion, it may be said that hysterical mental disorders are, on the whole, infrequent. This is true alike of delirium and confusion, while somnambulism, and especially double personality, are decidedly rare.

CHOREA

Pronounced mental phenomena are rare in chorea. However, the choreic child is often slow and heavy, and sometimes hebetude and apathy are expressed by the features. If the chorea be very severe and prolonged, these symptoms may become more pronounced, and the child may be quite stupid and may reply to questions with difficulty and in monosyllables. In the older patients, especially in girls about the age of puberty, a mild or a decided confusion, with hallucinations, may make its appearance. Rarely, *e. g.*, in chorea occurring during or following pregnancy, an active delirium supervenes. Such cases, spoken of as chorea insaniens, are usually very ill, the choreic movements pronounced, and the exhaustion severe. Death is a not infrequent outcome.

Cases of Huntington's chorea now and then develop mental symptoms. The patient becomes forgetful, depressed, and irritable, and at times slightly confused and hallucinatory. Less frequently he becomes suicidal and still less often persecutory. A mild dementia, which becomes more marked with time, is not uncommon. Notwithstanding, there are cases of many years' duration in which the mental condition, despite the distressing affection, is fairly well preserved.

PARALYSIS AGITANS

Mental symptoms are very infrequent in paralysis agitans. However, depression is now and then met with, though it is remarkable how well the majority of the patients bear their affliction. Now and then a mild confusion is noted. Sometimes hallucinations are present. One of my patients saw black objects, which she took to be mice, darting across the walls and ceiling and which frightened her very much. Very rarely are there hallucinations of the other senses. Hallucinations of taste have been described.

B. ORGANIC NERVOUS DISEASES

PARESIS

Paresis is an affection which is not usually classified among nervous diseases. However, while the mental symptoms form a prominent part of the clinical picture, the affection is attended by profound organic changes. These changes involve not only the brain, but also the spinal cord and, in given instances, even the nerves. Sometimes, again, the early symptoms are purely peripheral, while cerebral and mental symptoms make their appearance relatively late. In the great majority of cases, however, mental symptoms appear early. At first they are exceedingly ill-defined, vague, and general, and in keeping with the

fact of a diffuse involvement of the brain. In its essential features, paresis consists of a slowly oncoming and progressive dementia, which is attended by certain—and, it may be added, in their ensemble—characteristic physical signs.

It is known by a number of synonyms, among which may be mentioned general paralysis of the insane, paralytic dementia, paretic dementia, progressive general paralysis, general paresis, and paresis. The name paresis is now in common use, and, being a mononym, is, on the whole, to be preferred.

Etiology.—An increasing knowledge of paresis has enabled us to fasten with certainty upon one and the sole factor as the cause, namely, syphilis. It is true that a percentage of cases exists in which no history of syphilis can be obtained, or indeed of any venereal infection whatever. We must remember, however, that many cases, by the time the clinical examination is made, are already so far advanced that their statements as to their past history are no longer trustworthy. Further, that the initial lesion may be relatively slight and insignificant and may thus escape detection or recognition is well known. Especially may this be the case when the lesion occurs extra-genitally and innocently. The fact that paretics, without exception, are wonderfully tolerant of iodids and mercurials is a fact of great clinical value. Further, the Wassermann reaction is positive in almost 100 per cent. of the cases in the blood, and 90 per cent. in the cerebrospinal fluid with 0.2 c.c. and fully 100 per cent. when relatively large quantities of the latter are used (Nonne, Hoche). Finally, the epoch-making discovery of the *Treponema pallidum* in the brains of paretics by Noguchi forms the last link in the chain of evidence. Noguchi's discovery has since been many times confirmed. Among the earlier observers were Marinesco, Marie, Levaditi and Bankowski, and Foerster and Tomasczewski. The latter,

indeed, demonstrated the presence of living spirochetes in material obtained from paretics by brain puncture, while Noguchi successfully inoculated rabbits with the substance of paretic brains, typical syphilitic lesions being produced. The statement can now be definitely made that without a previous syphilis there can be no paresis.

A moment's reflection calls to mind that of those who are the victims of syphilitic infection, only a percentage, and a rather small percentage at that, develops paresis. It is evident, therefore, that other contributing and predisposing factors must play a rôle. Among these are overwork, nervous overstrain, exhaustion of any origin whatever. Some years ago Edinger pointed out that, in order that the integrity of nervous structures should be maintained, there must be a proper balance between the consumption of nerve substance (as a result of its functional exercise) and the restitution or upbuilding of that nerve substance. That this balance is disturbed in the tabetic and the paretic is extremely likely, and probably this in a measure explains the rôle which nervous overwork and overstrain plays in the development of paresis. A far more potent reason, however, is to be found in the fact that exhaustion diminishes the defensive reactions of the organism, lessens its antitoxin-forming power, and thus favors both an increasing invasion and an increasing propagation of the parasite. It is doubtless, also, for a similar reason that paresis commonly appears only as the patient approaches the forties and fifties; that is, when his biological resistance begins to flag, when the vigor of his metabolic processes begins to give way; and this too in patients in whom the infection has been acquired many years before and in whom the individual has been the host of the germ for ten, fifteen, twenty, twenty-five, or, it may be, even forty years.

Alcoholism, because it likewise lessens the defensive forces, is also, in many cases, a powerful contributing factor. The same value must be assigned to such factors as exhaustion from previous illness and from sexual excess. Regarding trauma, it may be definitely stated that the relation between it and paresis is that of sequence only. It is conceivable that infection of the nervous system having once been established, trauma may prove very injurious, as the resistance of the paretic is greatly diminished. Trauma, however, cannot cause paresis.

Paresis has an interesting geographic distribution; thus, it is common in England, France, Germany, America, Italy, and the Slavic countries; it is rare, or relatively so, in Scandinavia, Iceland, Ireland, the Mohammedan countries, and India. Perhaps this is to be explained by a relatively greater strain and intensive living. In America, again, paresis is quite frequent among negroes. That certain races possess a greater susceptibility is proven, as pointed out by Kraepelin, by the fact that in Java and Algiers, Europeans suffer, as compared with the natives, disproportionately from paresis, and the same is true of foreigners as compared with the natives in Bosnia. The significance of these facts is somewhat doubtful. It is conceivable that the more susceptible races have acquired a lessened resistance as a result of their method of living—an overstrenuous civilization, an abuse of alcohol, or some other as yet unascertainable cause. However, certain facts suggest that, at times at least, the virus of syphilis undergoes some change, acquires some quality which especially favors the development of paresis. It is difficult otherwise to account for instances in which husband and wife both suffer from paresis, or in which a number of men having acquired syphilis from the same woman, all subsequently develop paresis; the instance reported by Brosius of a number of glass-blowers, all infected by the use of the same mouth-

piece, and of whom more than half became either tabetic or paretic, illustrates the same fact. Certainly such occurrences as these can hardly be accounted for on the basis of coincidence.

Among other important facts, it must be added that paresis is relatively more common in cities than in rural districts; also, that male patients largely predominate. The proportion of the sexes is somewhat variable. Paresis occurs very infrequently among women of the upper class, and is relatively frequent among men of the same class. Among women of the lower classes the number is much greater, though here also men still predominate. Perhaps four to one of all classes would be a fair approximation.

Paresis is an affection which makes its appearance during the most strenuous period of adult life; that is, between thirty and fifty years of age. It is rare before twenty-five and rare after sixty. Its greatest frequency lies between thirty-five and forty-five. It also occurs in a juvenile form, and in such cases is due usually to inherited syphilis, though it may have its origin in syphilis acquired in infancy. Compared with the adult form it is, of course, rare. The ages of the patients are usually in the neighborhood of fourteen, sixteen, or eighteen years. Very exceptionally juvenile paresis occurs earlier and sometimes later. Cases of twelve and even eleven years of age have been reported, and Hoche speaks of cases beginning as early as the fourth or fifth year of life.

Symptoms and Course.—The symptoms and course of paresis are those of a gradually on-coming and slowly-increasing dementia; there is a progressive mental and physical deterioration, which becomes more and more profound, and finally—with doubtful exceptions—terminates in death.

It is quite common to divide the course of the affection into a number of stages; while there is much justification for this, it must not be inferred that these stages are clearly differentiated from each other, for this is not the case. As a matter of fact, one stage merges insensibly into the other, and it is usually quite impossible to say definitely when one ends and another begins. However, the symptoms vary both in character and in intensity at various times. This is true more especially of the beginning, of the fully developed, and of the final periods. It is, therefore, both convenient and useful to consider the symptoms as related to three stages: first, those of the initial period, second, those of the fully developed period, and, third, those of the terminal period.

The recognition of the disease in its earliest beginnings is very difficult. The patient himself does not realize that he is ill, and it is only after symptoms have been present for a time that he is brought to a physician by relatives or friends. As a rule, the statement is made that he has not been well for several months. The friends often tell us that his appearance and manner have changed, and that he no longer attends to his business properly, or no longer does his work as well as formerly. Inaccuracies and changes in the quality of his work are among the first symptoms observed; it is characteristic that this deterioration is observed, not by the patient, but by those about him.

The patient's condition may suggest that he is suffering from neurasthenia, but a brief examination soon shows that this suggestion is very remote. Rarely does the patient actively complain, and there are never present the fatigue aches, and pains of neurasthenia. Such information as we obtain from the paretic in regard to his bodily sensations is usually elicited by questioning only. The neurasthenic, as is well known, not only volunteers this information, but insistently dwells upon

his headache, backache, and other fatigue pains. Later, after physical signs have made their appearance, the differentiation from neurasthenia becomes absolutely certain.

The paretic patient quite commonly looks tired and perhaps a little somnolent. Usually he is pale; at other times he presents a heightened color. Quite commonly, too, his face lacks its former vigor of expression. His attitude, his movements, his walk, all may suggest a general loss of tone. He does not apprehend or comprehend as readily as formerly. He is absent-minded, cannot fix his attention as before, cannot follow a prolonged train of thought, misses the point of a conversation, loses the connection of what is being said. He may act as though there were a slight haze between himself and the external world. Soon he becomes forgetful.

During this time he may sleep badly. He may fall asleep with difficulty and the sleep may be broken; or, on the other hand, he may be somewhat somnolent during the day. He may complain—though rarely—of fulness, pressure, or constriction about the head, or of a dazed or stunned feeling, and at other times of dizziness. Sometimes he complains of ringing in the ears, sparks before the eyes, or *muscae volitantes*. Vague aches, suggesting rheumatism, may be present, but more often, if there be pain, it assumes a tabetic character, is lightning-like and shooting. Pain in the head of great severity and simulating migraine may also occur; at times the pain is referred to the supraorbital and adjacent regions and especially to the eyeball. Such an attack may suggest an ophthalmic migraine. On the whole, however, it should be added that distressing and painful sensations are infrequent in paresis. Even the migraine-like attacks, if they occur at all, may be limited to but a few seizures during the entire initial period.

Gradually the mental symptoms become a little more pro-

nounced. There is an increasing difficulty of attention. The patient overlooks important matters, misplaces objects and papers, forgets engagements, confuses persons, perhaps loses himself in accustomed places. Sometimes he acts as though he were slightly dazed or confused, at other times as though he were slightly intoxicated. He may answer questions fairly well, but may forget where he is, the circumstances in which he finds himself, or even to whom he is speaking. He can no longer observe closely and he tires very readily. His habits deteriorate; he does not dress himself completely, omits some article of clothing, or does not adjust his clothing properly. His conduct, too, shows that he is forgetting the decencies and proprieties, and that his taste, esthetic sense, and judgment are being impaired. His feelings, his sense of obligation, his affection for his family and friends become blunted. He may become dull, apathetic, and irritable. Disorders of memory become more pronounced. He forgets recent events, the death of a friend, repeats himself in talking, cannot group past events correctly, cannot give a clear consecutive history of his case. His account reveals obvious lapses and lacunæ. Often the latter are filled in with purely fictitious material. The patient may tell silly and absurd lies which have apparently no object or purpose.

Hand in hand with the general mental deterioration, the patient may become gross and intemperate in his habits. He may drink to excess, become coarse and obscene in speech, may expose his person, attempt liberties with members of the opposite sex, or may manifest eroticism in other ways. He may also commit theft; frequently the object stolen can be of no use to the patient, and the theft is merely an evidence of his absentmindedness and increasing dementia. At times again, as in the instance of a forgery, the act is clearly the result of

a deterioration of the moral sense; usually the offence is done in so silly and absurd a manner as to lead to early and certain detection.

The invasion of paresis is by no means uniform. Faint signs of mental change come and go, are at times quite noticeable and at others disappear. These variations of progress are quite irregular in their occurrence. Sometimes, however, they are so clearly marked as to attract the attention of friends. At times, also, there is a distinct diurnal variation, the patient being quite normal or almost so in the morning, and becoming dull, heavy, dazed, or slightly confused in the evening.

While the mental phenomena are making their appearance, physical signs also become evident to the observer. We have already noted that the patient's expression may be that of slight fatigue or somnolence, or that he may present an unusual pallor or a heightened color. If we look closely, we note also that the face presents a slightly smoothed-out appearance; its folds and wrinkles are shallower and its lines less clearly marked. The facial muscles reveal the general loss of tone betrayed by the patient in his attitude and in his movements. If we observe his movements carefully, we note also slight inaccuracies and slight incoordinations; perhaps a faint intention tremor of the hands, lips, or tongue; perhaps a slight and inconstant inequality of the pupils; or there may be an occasional tremor or uncertainty in the speech. As the affection progresses, these physical signs, shadowy and uncertain at first, become gradually more and more definite.

Little by little the symptoms, both mental and physical, become more pronounced, until the patient enters into the fully developed period of the disease. As a rule, the transition is gradual, and it is impossible to say just when the initial period has terminated and the established period begun. Sometimes,

however, the transition is relatively sudden or rapid, as when certain attacks, suggesting, it may be, epilepsy or apoplexy, supervene. Such attacks may come on at any time during the initial period. After a few premonitory symptoms, such as restlessness, excitement, and sleeplessness, the patient suffers from a sudden loss of consciousness. Quite frequently there is a loss of power, usually involving one-half of the body, as in an ordinary apoplectic stroke. Usually this hemiplegia is temporary, and, often, to the surprise of the physician who has been called in and who is not familiar with the previous condition of the patient, disappears in a few hours; only infrequently does it last a day or two. Sometimes both sides of the body are involved, but the paralysis usually predominates upon one side. Less frequently than apoplectiform attacks are seizures in which the unconsciousness is attended by a convulsion, as in epilepsy. The resemblance to an ordinary attack of epilepsy may be very close, save that the convulsion may be longer sustained and the recovery of consciousness much slower. Sometimes a Jacksonian epilepsy is closely simulated, the convulsion being confined to one extremity, usually an arm. Sometimes a paralysis or weakness of variable duration follows such a seizure; at other times, again, no noticeable change of power is subsequently observed. In the epileptiform attack consciousness may not be completely lost, rarely it is preserved; in the apoplectiform attack the loss is quite complete. It should be added that, on the whole, apoplectiform seizures are more frequent in the initial period of paresis than epileptiform. However, epileptiform attacks, as here described, may not only occur during the initial period, but may be the first crass sign of the developing disease. When such an attack assumes, as the writer has seen, a typical Jacksonian type in a case that has not previously been under observation,

the situation may be very puzzling; that there is great danger here of error in hasty diagnosis need not be pointed out.

Seizures are not present by any means in all cases. In their absence, the transition from the initial to the established period may be extremely gradual. Again, the inference must not be drawn that seizures are limited to the initial period. As a matter of fact, they may occur at any stage of the disease. As a rule, apoplectiform attacks occur relatively early, epileptiform attacks relatively late. That exceptions to this rule obtain, we have already seen. Finally, as above indicated, seizures of any kind may be absent throughout.

We may consider that the patient has fairly entered the fully established or second stage of the disease, when the physical signs have become well defined. Traces of these signs are, as we have seen, already present in the prodromal period. Now they are more pronounced. If we test the muscular strength of the patient, we find that it is markedly diminished. Tremor, distinct, perhaps fine, more frequently coarse, is noted in the hands, the lips, and tongue, and is elicited or becomes more pronounced upon effort or intention. The patient's movements, as a whole, may be awkward, may lack coördination. Again, they may be spasmodic and jerky. Most frequently it is the face which attracts our attention. Irregularly recurring twitches of the facial muscles, tremulousness of the lips or of the muscles about the eyes and forehead are striking symptoms. The lines of the face, as already noted in the initial period, are less pronounced; this is especially true of the nasolabial fold and of the lines about the forehead. The face may seem unusually smooth, or, on the other hand, slightly puffy, perhaps flabby and coarse. Sometimes one-half of the face distinctly droops or is more frequently disturbed by tremors or twitchings than the other. When the patient is asked to show

the tongue, he may protrude it by jerky and irregular movements.

If the movements of the arms be examined they may reveal a distinct, though not usually a coarse, ataxia. If the patient's station be tested by the Romberg method the sway is usually found to be slightly increased, sometimes not at all, and rarely markedly so. Pronounced increase of sway, such as is observed in tabes may, however, be met with in the ascending or tabetic form of the disease in which the early physical signs may closely resemble those of tabes.

The gait of paresis is very variable. It may early reveal no peculiarities whatever, but, as the disease advances, distinct ataxia may be noted, and this may gradually become more pronounced. Infrequently, as in the tabetic form just mentioned, ataxia of gait is an early sign and suggests the diagnosis of locomotor ataxia. In a large number of cases, and in addition to moderate incoördination, the gait also presents some evidences of spasticity. Like the incoördination, however, this spasticity in the average case is very moderate in degree.

The knee jerks are quite commonly exaggerated; however, they vary greatly; they may be diminished or entirely lost. Quite commonly such a diminution or loss is noted in the tabetic form. An ankle clonus is only infrequently present, and this is true also of the Babinski sign; when present they are usually in keeping with other evidences of spasticity. The tendon reactions of the upper extremities reveal nothing characteristic.

The eye symptoms of paresis next claim our attention. They are exceedingly important from the standpoint of diagnosis. Quite frequently they occur very early. The most common phenomena are those which relate to the pupil, and here one of the earliest signs is that of inequality. Differences in the size of the pupils may occur physiologically, but such difference is usually very slight. If, however, a difference in the

size of the pupils be noted, and this difference be associated with a sluggish light reaction in either or both, the finding suggests paresis in an incipient stage. Again, if the inequality of the pupils be shifting in character, present at one time and absent at another, the same inference is indicated. Again, the pupil in paresis is not infrequently irregular in shape. It may be oval or ovoid or its circumference may be irregular; the circle may here or there be slightly flattened as by a cord, or it may be slightly angled. The deformities are never gross, but when present are usually very distinct. They appear to be due to an irregular innervation of the iris, and the symptom is to be regarded as the forerunner of the Argyll-Robertson pupil. The irregularity, like the inequality, is usually changing and shifting; it is present at times and absent at others; indeed, the shape may change while under observation, and thus may justify the term ameboid pupil. If inequality and irregularity both obtain, the inference as regards a developing paresis is equally obvious. How significant these observations become when they are attended by a diminished or a sluggish light reaction we will presently see.

Changes in the size of the pupils are infrequent in the early stage of paresis. Myosis is observed, but is much less frequent than in tabes. If associated with a change of the light reflex, it has of course special significance. An unusually large pupil is rare. Mydriasis does not occur, if at all, until the disease is far advanced.

In the early diagnosis of paresis changes in the equality, shape, and size of the pupils are very important, but the symptom of paramount value is change in the behavior of the pupil to light. The light reflex is impaired or lost sooner or later in the great majority of cases. Long before the pupil becomes

fixed to light, it is noted that the response is lessened in degree or that it is distinctly sluggish or retarded. A point of great diagnostic importance, in cases in which the pupils are equal, exists when the pupils react differently to light; such an observation always justifies the inference that in one pupil the light reaction must be abnormal.

The reaction to accommodation is preserved in paresis long after the light reflex is lost. However, when the dementia and deterioration become profound, as in the final bed-ridden period, it also disappears. The more advanced the case, the more likely is there to be loss of accommodation; the loss is present in both eyes simultaneously.

Changes in the eyeground, with progressive amblyopia and amaurosis, may be noted. As compared with tabes such changes are relatively infrequent. The papilla may be pale, gray, or white. On the whole, however, optic atrophy sufficiently marked to cause blindness is rare in paresis. Notwithstanding, fundus changes are exceptionally met with among the first physical signs. Amblyopia is more commonly observed than amaurosis. Amblyopia, again, may exist without any changes in the eyeground. Indeed, it may antedate all other demonstrable changes in the eyes, either in the pupils or eyegrounds. Usually the degree of amblyopia present under such circumstances is slight. It may exist with or without a diminution of the color sense, but when present in a suspicious case it constitutes an invaluable sign.

Disturbances of the visual fields in paresis may occur, but they are not common; especially is this true of marked disturbances. Concentric reduction may be noted, and, more rarely, gross changes, such as a hemianopsia.

Among the physical signs of paresis, various palsies of the cranial nerves may occur, more especially of the third, fourth,

and sixth. These may give rise variously to strabismus, diplopia, or ptosis. They may make their appearance at the very beginning of paresis or may occur during the period of the fully developed disease. Usually these palsies are not pronounced or striking. Most frequently only a very slight degree of ptosis or of weakness of outward or inward rotation is noted, and, as a rule, careful observation is required to detect even these anomalies. Quite commonly they are transitory and fugacious. At times slight atactic movements—perhaps suggesting nystagmus—are present. On the whole, palsies and other motor disturbances are quite secondary in importance to the other eye symptoms of paresis; they are relatively infrequent and inconstant.

The usual sequence of the ocular phenomena may be briefly summarized as follows: inequality of pupils, irregularity of pupils, impairment of the light reflex upon one or both sides, with, at the same time, preservation of accommodation; later, as dementia progresses, impairment and final loss of accommodation, the pupil being then inert to all forms of excitation. A fully developed Argyll-Robertson pupil may be present in the early period, which is infrequent, and in the established period. Loss of accommodation may be added, in keeping with the increasing loss of mind, in the latter part of the established period or in the final period of maximum dementia.

It should be borne in mind that the inequality and irregularity of the pupils may vary considerably from time to time; especially may this be observed in the early stage of the affection. Very rarely the light reflex, it appears, if impaired and not entirely lost, may be re-established during a period of general improvement; *e. g.*, during a remission, as in a case reported by Bumke. The irregularity of the pupil, so frequently an early sign, is to be looked upon as the beginning of the pro-

gressive iridoplegia of which the Argyll-Robertson pupil is the more advanced stage and the inert pupils of the terminal period the final stage. Finally, it should be added that, in general terms, the eyes in juvenile paresis present a symptom group similar to that found in older subjects.

Slight disturbances of speech, noted in the initial period, give place to awkwardness, thickness, and hesitation, as the established period is reached. It is noted that when the patient attempts to speak the twitching of the lips and of the facial muscles increases. The enunciation loses its precision. Consonants are pronounced imperfectly, syllables are slurred, or there is a quavering break between syllables or between words, or syllables may be haltingly repeated. In other words, the enunciation is atactic. Sometimes the patient stops because he cannot find the necessary word, or the wrong word is used, or the sentence is broken, unfinished, or is unintelligible. In part, and especially earlier in the case, the peculiarities of speech are due to ataxia and tremor of the various structures—lips, tongue and palate—concerned in articulation. Later, as the dementia progresses, distinct aphasic phenomena and phenomena due to poverty of thought are added. It is not uncommon to use, in examining the speech of paretics, especially in the initial or early established period, certain words or phrases to elicit the difficulty of enunciation; for instance, it is found that paretics whose speech does not as yet betray a gross defect may have difficulty in pronouncing properly words containing both the letter "l" and the letter "r," such as "truly rural," "artilleryman," and the like.

The handwriting in paresis also undergoes a change. It becomes tremulous and irregular, and later the patient makes errors of spelling and of grammar. Elision of letters, words, and syllables occur with frequency, while the paper is often

smeared and blotted. A paretic letter is often disconnected, betrays the delusions of the patient; sentences are incomplete; date and signature may be omitted.

The examination of paretics reveals few sensory phenomena. Gross anesthesias are rarely, if ever, observed. There may be a blunting or psychic indifference to cutaneous stimulation; perhaps true hypesthesia may exist. Amblyopia, color blindness, and amaurosis may, as we have seen, be present. Hearing, smell, and probably taste, may be obtunded. It should be added that, among the interesting facts to be grouped with the physical phenomena of paresis, are first those of increased intracranial and intraspinal pressure. This was demonstrated by Schaefer. Secondly, as we shall see more in detail farther on, the percentage of protein in the cerebrospinal fluid is increased, and the microscopic examination, as in tabes, reveals a more or less marked increase in the lymphocytes.

As the patient approaches the established period, the mental symptoms of the initial period gradually become more pronounced, until they, too, like the physical signs, attain a marked degree of development. Memory, judgment, will-power, the personal habits, now show great deterioration and the mental state is patent also to the lay observer. The gradually increasing and progressive dementia may be the only form assumed by the mental symptoms. However, at times, other symptoms are added; thus, there may be added emotional depression, or, on the other hand, emotional expansion, and, at other times still, both of these states may alternate in the same case. As a result, paresis may present itself in the following forms—first, the simple demented form; second, the depressive form; third, the expansive form; and, fourth, the circular form.

The simple demented form resembles in its course a simple progressive dementia. It is often exceedingly gradual in its

onset, and its course may be so smooth that for a long time it may remain unrecognized. It appears more frequently among women, although it also occurs in a large proportion of men. Among women, however, paresis is, almost as a rule, less active than in men. Compared with the depressive and expansive forms, the simple demented form seems to occur at a relatively early age. Finally, it is of longer average duration than the other forms.

The depressive form of paresis is characterized by the fact that upon the advent—or perhaps earlier—of the established period the patient passes into a state of more or less marked mental depression. He may evolve ideas of bodily disease or of sinfulness, or it may be of persecution. Occasionally hypochondriacal ideas are manifested by gross delusions; the patient may believe that his blood has become congealed, that his bones are broken, that he has lost his insides, that his arms and his legs are gone, that he cannot eat, that he has no mouth, that his bowels are hopelessly diseased, that he is wasting away, that he is growing small; or, he may believe that he is very wicked, that he cannot be saved, that there is poison in his food, that he has been dead a thousand years. The delusions are multiple, vary constantly, are extremely shifting and poorly, or not at all, systematized. Frequently somatic and spiritual delusions are intermingled. Sometimes attempts at suicide or at self-mutilation are made, though, for obvious reasons, they are rarely successful. Sometimes the patients become extremely agitated, passing through periods or veritable attacks of fear with painful confusion. Hallucinations may be present; the patients may hear voices, have foul tastes and smells. That the latter are interwoven with the delusions need not be pointed out. On the whole, however, hallucinations are not prominent, and, indeed, they do not

appear to play an important rôle in paresis at any time. It should be added that a large proportion of the cases of the depressive form of paresis are found among women. Its average duration appears to be less than that of the simple demented form and greater than that of the expansive form.

The expansive form of paresis is characterized by an expansive mental state. The tendency to boastfulness and exaggeration, noted perhaps in the initial period, now becomes very marked. Delusions extravagant in character make their appearance. The patient believes himself to be the possessor of various qualities indicative of importance. He has an exaggerated feeling of well-being, was never better in his life, is wonderfully strong, very powerful, very rich. If the patient be a woman, she is endowed with great personal beauty, blessed with an extraordinary number of children, or is favored by more than the usual number of lovers and husbands. It is characteristic of these delusions of grandeur that they are poorly systematized, are very variable, and feebly held. The patient makes no effort to account for his phenomenal wealth; to-morrow he may tell us that it is the result of a great invention, or, upon another day, that he received it as a bequest. To-day he is worth two hundred thousand, tomorrow it may be many millions, or the day following he has forgotten about his wealth and tells us that he is a senator, a governor, that he is a graduate of Harvard, Berlin, or Paris, that he is a great lawyer, or that he is an "elegant" singer and player.

Occasionally the exaltation increases to such an extent that the excitement resembles that of mania. The patient may become extremely noisy and pour out in a frenzy his ideas of greatness, of riches, of owning the biggest ship on earth, of marrying the queen, of being everything and everybody that is

powerful and great. Sometimes he becomes destructive, foul, and indecent. Periods of great excitement are often followed, like epileptiform or apoplectiform attacks, by a marked accentuation of the dementia.

The expansive form is, on the whole, the least common form of paresis. It occurs more frequently among men than among women. Its duration is shorter than that of either of the other forms.

The circular form of paresis is very rare. However, every now and then a patient who has been suffering from a depressive period becomes expansive. Occasionally, though rarely, a series of depressive and expansive phases may succeed each other; usually the phases are very short in duration, sometimes only a few days. In one case observed by the writer the patient was for a time depressive and expansive on alternate days. Pickett has described a case in which an expansive phase of several months' duration was succeeded by a persistent depressive phase. Such an occurrence, however, appears to be exceedingly rare.

The third or terminal period is characterized by a profound dementia. Little by little, the various physical and mental symptoms of the second stage become more pronounced. Conversation becomes more and more difficult, owing not only to the anomalies of speech, but also and especially to the increasing dementia. The voice sounds hollow, rough, or it may be indistinct and weak, because of the involvement of the muscles of the larynx and of the chest walls. Toward the close of the established period the delusions of depression or expansion, if they have been present, gradually vanish or recur only in occasional fragments. Finally, they are lost altogether. In numerous ways the patient shows that his appreciation of his surroundings is more imperfect than ever. If he walks at all

he stumbles and staggers from weakness and ataxia. If he sits in a chair, he lolls forward or to one side. He fails to evacuate his bowels and bladder, the latter are emptied spontaneously, and he becomes extremely filthy. His face is coarse and flabby and its expression vacuous. Occasionally tremors or twitchings distort his features, but they correspond to no emotion of the patient. The pupils are frequently dilated, usually unequally so, and commonly immobile. Finally, the patient becomes hopelessly bedridden. Voluntary movements are either not attempted or take place without evident purpose. The extremities, especially in the non-ataxic form, become more or less rigid; in many cases severe contractures of both arms and legs make their appearance. The legs may become adducted or firmly crossed, or flexed over the abdomen, while the arms are flexed and drawn over the chest. Bed-sores, if not present before, make their appearance. Other profound trophic changes—blebs, boils, hematomata, herpetic eruptions—are the rule. Swallowing becomes increasingly difficult. The mental faculties are completely, or almost completely, lost, and the existence of the patient becomes purely vegetative. Diarrhea, cystitis, disease of the kidneys, terminate the picture, or, it may be, tuberculosis or some other intercurrent infection, such as influenza or pneumonia; perhaps it is heart failure and edema of the lungs that conclude the scene.

The physical signs of paresis are of course the same, no matter whether the patient suffers from the simple, the depressive, or the expansive form. These physical signs, as far as they relate to the nervous system, have already been considered. It remains to briefly summarize the visceral symptoms; these, while not of prime importance, merit a brief consideration.

The circulation in the larger number of cases, and especially in the earlier stages, presents an increased arterial tension.

The second sound of the heart is accentuated; the pulse-rate is slightly increased, rarely slow, and sometimes normal.

The respiration presents no special change. In bedridden cases, however, the rhythm may be disturbed; sometimes a Cheyne-Stokes respiration is simulated.

Digestion is, as a rule, well preserved. Late in the case, however, owing to imperfect mastication, the swallowing of the food in bulk, and doubtless also due to the defective innervation of the intestinal tract, diarrheas make their appearance. Mucous colitis, ulceration of the bowel, and occasional bleeding or hemorrhage may be observed.

The urine only infrequently presents albumin. Sugar is found rarely. Early in the case the urea and chlorids are increased in amount; later they are diminished. The phosphates, urates, and other solids undergo diminution as the last stages of the disease are reached.

The perspiration is, as a rule, not much modified. Sometimes, however, the skin is unusually dry or unusually moist; occasionally excessive local sweating is observed; for instance, over one-half of the chest or back or one-half of the trunk and body generally. In the late stages the skin may become sticky and greasy. Sometimes it becomes darker, especially about the forehead and temples.

The saliva undergoes no special change. The drooling observed in advanced cases is not necessarily connected with an increased secretion.

Other things equal, the patient loses in weight during the initial period and during times of expansion and excitement. Later on, however, as he becomes less active, he increases in weight and accumulates a soft and flabby fat. As the terminal period is approached, and thence onward, a progressive loss of weight again occurs. The histologic examination of the blood

reveals nothing characteristic. There may be a moderate degree of leukocytosis with some reduction of the hemoglobin.

The temperature in paresis remains, with few exceptions, normal. Slight fluctuations may, however, be noted. A rise of temperature generally occurs at the time of and following a convulsive or apoplectiform attack or a period of agitation and excitement. Rise of temperature, especially a decided rise, occurring at other times, must find its explanation in some visceral or local complication.

Finally, various trophic disturbances occur in paretics. Among these we note, first, simple vasomotor disturbances, such as local flushing, cyanosis, marked dermography, persistent erythema, and slight swellings after insignificant pressure or traumata. The skin bruises very easily, and under these circumstances bed-sores form with great readiness. Naturally they occur most frequently in the latter part of the second and in the terminal periods of the disease. They are doubtless, in the great majority of cases, due to pressure upon tissue in a state of greatly lowered nutrition. That trophic influences, however, play an important rôle in some cases is suggested by the rapidity and suddenness with which they every now and then appear. Besides, there are other evidences of trophic changes furnished by the skin, such as blebs, herpetic eruptions, and ulcers. In this connection, we should mention especially the perforating ulcer now and then seen on the ball of the foot, and which is identical in character with the perforating ulcer met with in tabes.

Due to the greatly lessened resistance of the tissues, subcutaneous and other ecchymoses are often met with. Sometimes punctiform hemorrhages and at other times purpuric spots and blotches are present. Sometimes, indeed, the extravasation is very marked and is accompanied by a certain amount

of swelling, as, for example, about the ankles, knees, popliteal spaces, and elbows. The mucous membranes also present evidences of a weakened vasomotor condition, especially in the later stages, and we may observe epistaxis, hematemesis, hemorrhage from the bowels, and metrorrhagia. At times, also, blood is noted in the urine. In the terminal stages, also, hemorrhagic extravasation may occur on the surface of the pleura or into the substance of the lung. It would appear that similar occurrences may take place on other serous surfaces and into other organs. That they occur in the subdural space is frequently shown at autopsy, when they constitute a so-called pachymeningitis haemorrhagica.

Among the most interesting trophic, or angioparalytic phenomena met with, is hematoma of the ear. Here extravasation of blood takes place into the fibrous tissue and skin of the auricle; sometimes it is very extensive. Subsequently reabsorption takes place, followed by more or less deformity of the ear. Similar hematomata now and then involve the nose. In paretics the muscles also bruise very easily, and they also may be the seat of hematomata. Independently of these, other changes may be noted in the muscles; thus, there may be general muscular wasting; at times, though rarely, true muscular atrophy, due to lesions of the cord, may occur.

The bones also may be the seat of trophic changes. The ribs and long bones generally, frequently become very brittle, so that slight falls or blows result in fractures. Trophic changes in the joints are also occasionally met with; the symptoms are typically those of the Charcot joint. There is exudation of fluid into the capsule, erosion of the cartilage, and destruction of bone, the change being entirely without pain; the condition is identical with the arthropathies met with in tabes, and, like the latter, doubtless dependent upon changes within the spinal

cord. As might be expected, they are more frequent in paresis of the ascending or tabetic form, the so-called tabo-paresis. Charcot joints are not common in paresis, but are met with in a not insignificant percentage of cases.

The tendency of late years, following the teaching of von Gudden, has been to ascribe the so-called trophic phenomena of paresis, more particularly the surface changes and hematomata, exclusively to trauma. A moment's reflection will, however, convince us that, if lying upon the ear is sufficient to produce an othematoma, the nerves, vessels and tissues generally must be diseased; similarly, if tripping over a rug or turning in bed is sufficient to break a thigh bone, it is a fair inference that the bone has undergone a trophic change. Doubtless the truth lies midway, for normal occurrences, every-day traumata, are insufficient to produce such results in a state of health. Finally, trophic changes, so-called, are practically limited to the advanced stages of the disease, when not only the nerve-centers but the tissues generally have deteriorated.

Duration, Rate of Progress, Remissions.—The duration of the initial period of paresis cannot, for obvious reasons, be definitely fixed. It averages somewhere between one and three years; in the tabetic form it may be much longer. As already indicated, the course of the invasion is usually slow and insidious. A patient who betrays suggestive symptoms in the evening may, to all intents, be normal the next morning. Again, the invasion may be irregular; thus, the symptoms having begun, perhaps faintly, may recede, and the patient be apparently well for weeks or even months, when they may again appear. It may, therefore, in practice be impossible to fix upon the beginning of the disease.

The tendency to the remission of symptoms may be evident

not only in the initial period, but also in the established period of the disease. As a matter of fact, there are very few cases in which remissions do not at some time or other occur, and in a greater or less degree. At the time of a remission, the patient is in an improved condition. His delusions disappear, his memory is better, and he is again in closer touch with his surroundings and with his affairs. Sometimes the change is so great that the friends believe that he is well, and that the physician has made an error of diagnosis. On examining the patient, however, various symptoms are observed which show that, though improved, he has not made a recovery. A feeling of well-being, an unwillingness or inability to realize that he has been ill, a tendency to plan a little too extensively and enthusiastically for the future, an intolerance of further care or medical advice, are, to say the least, suspicious symptoms. Further, if the remission occurs in the established period the physical signs persist. Tremor and speech difficulties are lessened, but still in evidence, and so it is with changes in the tendon reactions and the pupils. Every now and then, however, if a remission occurs in the initial period, or before the established period has been fully entered, the degree of improvement is remarkable; indeed, the recession of mental symptoms may, for the time being, be complete or nearly so. Under such circumstances the patient may resume his daily avocation—clerkship, draughting, professional work, and the like—for a time. Further, remissions not only vary greatly in degree, but also in duration; sometimes the patient shows his improvement for a few days or a few weeks only, at others for months and even years. Remissions of three or four months' duration are quite common, remissions of a year somewhat less so, and those of several years quite exceptional. Well-marked remissions occur, on the whole, more frequently

in the expansive form and somewhat more frequently among men than among women. It should also be added that, in rare instances, a remission follows some acute illness, especially if the latter be one confining the patient to bed; among these may be mentioned erysipelas, trauma, fracture, or abscess. Finally, remissions are relatively frequent in the initial period and early part of the established period. They are infrequent when the second period is well established and do not occur at all in the third period.

The remission, as has already been indicated, is a time of shorter or longer improvement, but always temporary. Sooner or later, the symptoms reappear and usually in an increased degree, and quite frequently the affection subsequently pursues a more rapid course. Because of the temporary character of a remission, the patient should, if possible, be kept under some degree of observation even when he seems most well.

As the reader is by this time aware, a number of factors influence the duration of paresis. Among these, as already indicated, is the form which the disease assumes. It is longest in the simple demented form, somewhat shorter in the depressive form, and shortest of all in the expansive form. Second, all factors of a disturbing character, such as apoplectiform and epileptiform seizures, or the occurrence of periods of marked excitement and agitation, greatly hasten the course of the disease. Third, all factors that tend to quiet the patient, such as sanitarium or asylum life, care and nursing, tend to prolong its course. Fourth, prognosis as to duration is greatly influenced by the occurrence of remissions. Finally, the duration of paresis is, on the average, greater in women than in men.

The average duration of all cases is between two and three years. Cases are occasionally, though infrequently, met with

in which the disease pursues a furibund course, the patient dying at the end of a few months; here, it need hardly be added, the actual duration, because of the uncertainties of the initial period, may be much greater than at first appears. Sometimes, again, the duration is exceedingly great. This is not unusual in cases which begin with spinal symptoms and in which the mental symptoms appear relatively late. Paresis, too, of the ordinary form every now and then presents a history of unusual duration. Ten, fifteen, and even more years have been reported; it should be added, that cases of such anomalous length are usually open to question.

Prognosis.—It has for many years been held that the prognosis as regards life is uniformly unfavorable and that to this rule there is no exception. Certain it is that this is invariably true of cases in which no treatment has been instituted; equally true is it of all cases treated by the older methods of mercurials and iodids. Whether the introduction of salvarsan has brought about a change remains to be seen. There are some alienists who believe that salvarsan therapy in some cases arrests the prognosis of the disease, and also that a larger number of remissions are observed under its use. To the consideration of this interesting and important subject we will return in the section on Treatment. Suffice it to say here that in the observation of the writer, paresis is still one of the most fatal, if not the most fatal, of all diseases.

Death may also occur in paresis from some intercurrent affection. Particularly is this liable to happen during the second period. An influenza, a pneumonia, a gastro-intestinal attack, may cut short the disease. Death now and then, also, ensues during or follows an apoplectiform or an epileptiform seizure. A given number of paretics thus die before the third period is reached.

Pathology.—In order that we should entertain clear conceptions as to the nature of the pathological processes at work, it is necessary that we should first consider, though briefly, the subject of syphilis of the nervous system as a whole. Secondly it will be necessary to review many facts clinical in their nature but which have a profound pathological significance. With the discovery of Noguchi of the actual presence of the spirochete in the paretic brain, the thought naturally suggests itself that the distinction formerly made between syphilis of the vessels and membranes and parasyphilis, *i. e.*, paresis and tabes, can no longer be maintained. However, while all diseases of the nervous system resulting from the infection of the spirochete fall properly under the caption of syphilis, it does not follow that all nervous syphilis is the same, nor does it follow that the clinical distinctions previously established can be abandoned. Syphilis of the vessels and membranes of the brain and cord, *i. e.*, gummatous infiltration of the vessels and membranes or syphilis of the exudative form as it may also be called, presents, other things equal, special symptom groups with special possibilities and probabilities in prognosis. These symptom groups, which are the outcome of the interference of nutrition caused by a diminished lumen or occlusion of the vessels and to a less extent of pressure, it would be out of place to rehearse here; suffice it to say that in exudative syphilis of the brain the picture is that of headache, somnolence, possibly optic neuritis; or, it may be of palsies of cranial nerves with or without hemiplegia crossed or ipsilateral, while mental symptoms are absent or practically so. Again, in exudative syphilis of the cord the picture is that of a paraplegia in which spasticity and to a less extent ataxia are the dominant features. At the same time there are slight sensory losses—not the retardation of tabes—merely a hypoesthesia. Further, both the motor and sensory phenomena are

unequally marked in the two extremities, one limb is always more affected than the other. There is also a history of a transient bladder disturbance; first delayed micturition, then slightly lessened vesical control, and lastly and quite commonly spontaneous disappearance of the sphincter symptoms. Finally, there is a conspicuous absence of lightning-like, shooting, or other pains. The picture is due primarily to gummatous infiltration of the vessels and membranes of the cord. Clinical observation has not only enabled us to make broad and fundamental distinctions between these cardinal symptom groups, but it has also taught a significant lesson as regards the clinical histories of the patients. Thus, every physician of experience knows that in parasyphilis the history of the original infection, *i. e.*, of the primary lesion, is often difficult to elicit, often denied, and often uncertain. Particularly is this true of paresis; it is almost equally true of tabes, while it is quite the exception in exudative cerebral and spinal syphilis. In keeping with this a search upon the genitals for scars of the initial lesion is almost invariably met by failure in both paresis and tabes. Again, a history of secondary symptoms, eruptions, mucous patches, sore throat, and falling out of hair is commonly wanting in paresis and tabes; if the writer were to trust his own experience entirely, he would say invariably wanting. It is this fact which has led physicians at times to speak of paresis and tabes as the outcome of "mild syphilis," a designation which is singularly inapt when applied to affections which are attended by gross and permanent destructive changes.

How greatly exudative syphilis of the brain and cord differ in their symptomatology from that of paresis and of tabes need hardly be pointed out. Paresis, in brief, presents the picture as already described, of a gradually oncoming and slowly increasing dementia. Certain physical signs, as we have seen, are present,

and these not only differ largely in kind from those of exudative syphilis of the membranes and vessels but also in being less clearly marked and definite. There are present a variable intention tremor of hands, lips, and tongue, an atactic speech, inequalities, irregularities, sluggishness or fixation of pupils, the Argyll Robertson pupil, slight modifications of gait, transient apoplexies or hemiplegias, and infrequently transient, slightly marked fugacious pareses of the cranial nerves, and other symptoms all of them the outcome of a general, a parenchymatous, destruction of brain tissue.

In tabes the symptom group also differs widely from that of gummatous disease of the vessels and membranes of the cord. The lightning-like pains, the loss of reflexes, the incoordination, and the Argyll-Robertson pupil form a well-defined and distinctive clinical picture. This peculiar clinical history suggests a possible, if not a probable, difference in the character of the infection. It is difficult, on the other grounds, to interpret the cases in which both husband and wife suffer from paresis or in which both suffer from tabes. It is quite startling to realize that one of the conjugal partners does not suffer from exudative syphilis of the membranes and vessels and the other from paresis, but that both suffer from paresis. Morel-Lavallée and Bélières have reported an instance in which five men infected by the same woman all became paretic, and to this number Ramadier added a sixth, likewise paretic from the same source. Brosius has reported an instance of seven glassblowers all infected by the same mouthpiece, of whom five were attacked either by tabes or paresis, while the remaining two presented very suspicious symptoms. Similar instances have been recorded by Nonne, by Marie and Bernhard, and by Erb. Certainly it would seem that at times the germs of syphilis undergo some change, acquire some quality which especially favors the development

of paresis, or it may be that, as Mott has suggested, "there may be varieties of spirochetes as there are different varieties of trypanosomes, the morphological character of which would not permit of differentiation." To the writer the clinical evidence points strongly to the existence of a special strain of spirochete as the cause of paresis.

Whatever the facts as to the character of the spirochete of paresis may be, the germ is found deeply placed in the brain substance, predominating, as might be expected, in the cortical tissue. Here it appears to give rise to toxins, and the latter, in turn, to antitoxins.

It is extremely probable that the very earliest symptoms of paresis are not the result of organic change, but of a toxic condition. At least this inference is justifiable in all cases except perhaps those of the ascending or spinal form. The mere fact that in the initial period there may be a complete recession of symptoms indicates that the change in the nerve-centers is as yet functional; *i. e.*, is such a change as might accompany the varying action of toxic agents. That, indeed, in the very early period structural changes are absent is proved by autopsies in cases which have died at this period from intercurrent disease or accident; in cases dying during the initial period in which organic changes do exist, the latter are frequently found to be slight and inconsequential. When physical signs have made their appearance it is, of course, proper to infer that they are due to organic changes. Again, the added mental phenomena which in one group of cases manifest themselves by depression, and in another by expansion, also point to a toxic condition. It is the actual mental loss, the quantitative reduction of mind, which indicates an organic change, a destruction of tissue.

Autopsies in cases dying during the established period and

in the terminal period reveal striking and quite constant findings. Naturally, they reach their greatest development in cases dying in the terminal period.

It is noticed, on opening the skull, that the calvarium is much thickened; often the diploic structure has been much encroached upon, and here and there it may have disappeared. It is also observed that the calvarium is removed with difficulty; it is more or less adherent to the dura, often firmly so. The dura, too, is much thickened, and, when it is opened and turned back, its inner surface often presents the condition known as pachymeningitis haemorrhagica. Repeated exudations of blood upon its surface have been followed by thickening, reddish deposits, or more or less evidence of organization; at times cysts are formed, often small and again quite large, adherent to the dura, covered by a thin new-formed membrane and containing clear, or it may be yellowish or reddish, fluid; such formations are sometimes spoken of as arachnoid cysts. When the skull is opened it is also noted that an unusual amount of cerebrospinal fluid escapes.

When the brain is removed and placed upon the table, it is observed that it does not retain its shape as well as does the healthy brain; it sags and flattens; it is obviously softer than normal. The pia arachnoid is opalescent and infiltrated; particularly is this noted along the sides of the veins. The pacchionian bodies are increased in number. If we attempt to remove the pia, we find that it is not only thickened, but adherent to the subjacent cortex; so much so that, if we persist in the attempt, the cortex is torn off along with the pia. We are also impressed by the fact that the convolutions are markedly small and atrophied and that the sulci are wide and gaping. The meshes of the pia arachnoid are everywhere filled with fluid, as are the gaping sulci. Here and there the

cerebral cortex is depressed, as by loss of substance, and the surface of the superjacent pia may present at such places the appearance of covering a cyst. As a whole, the changes in the convolutions are more marked in the frontal and parietal regions than elsewhere.

If we incise the brain, we find that the cut surface is more moist than usual, and here and there we see small vessels lying loosely in what are evidently dilated perivascular spaces. Changes similar to those noted in the cortex and white matter are noted in the basal ganglia, the crura, pons, and cerebellum. The ventricles are found dilated, while the ependyma is roughened by granulations; the last-mentioned changes are particularly pronounced in the fourth ventricle. The endothelium seems to have disappeared, while the granulations have their origin in a proliferation of the neuroglia. If the brain be weighed, it is found to be much less heavy than normally; thus, the author found the average weight of nine male paretic brains to be only 41.8 ounces, while the average weight of four female paretic brains was only 37.1 ounces. Of course the evidences of atrophy and loss of substance are, other things equal, more pronounced in patients in whom life has been longest maintained.

If the cortex be examined microscopically, it is found to be thinner and to have lost some of its cellular elements; indeed, it is frequently impossible to trace the various layers of the cortex. The nerve cells have undergone granular and pigmentary degeneration, atrophy, and loss of cell processes. Like the nerve cells, the nerve fibers have undergone atrophy and destruction, and this is true alike of the radiating fibers which enter the cortex and of the tangential fibers which constitute its outermost layer. Everywhere there are evidences of proliferation of the neuroglia; here and there large, many

branched glia cells are seen, the so-called spider-cells. The vessel walls and the perivascular spaces are densely infiltrated with nuclei, with lymphocytes, and plasma cells. Elongated rod-like cells are also found in the neighborhood of vessels. Similar changes are found in the basal ganglia and cerebellum.

In the cord, changes in the pia are more or less evident; those in the dura less frequent. The cord substance may reveal degenerative changes, increase of the neuroglia and connective tissue elements, and changes in the vessel walls, though these are rarely as marked as in the brain. In many cases, especially in those in which spasticity and perhaps late contractures have been features, we find evidences of descending degeneration in the pyramidal tracts; in other cases, again, in which a tabetic symptom group was early present, we find changes in the posterior columns. Not uncommonly degenerative changes are found in both lateral and posterior columns or irregularly evident in various portions of the cord. The peripheral nerves also may reveal changes similar to those found in tabes.

Diagnosis.—Our increasing knowledge of the etiology and pathology of paresis has given rise to the hope that perhaps it may be possible of cure or at least of being arrested in its progress, especially if it be recognized sufficiently early. The early diagnosis of paresis has, therefore, assumed a great importance. It is, of course, the practising physician, the family doctor, who sees the patient first, and it often depends upon the alertness and acumen of the latter whether an early diagnosis is made. There are commonly certain suggestive facts associated with the manner in which the case comes to the attention of the physician which, other things equal, should excite the suspicions of the latter.

First, the patient in the early stages of paresis is usually brought to the physician by relatives or friends. Rarely does

he come of his own initiative. Secondly, it is the relatives or friends who detail the symptoms, not the patient. They give an account of changes which they have noted and of which the patient himself has not been cognizant or to which he has paid no attention. The signs of ill health are first observed by those about the patient and not by the patient himself. Indeed, the latter does not actively complain unless there happen to be present tabetic or neuralgic pains or perhaps attacks of headache, all of them symptoms by no means frequent. He is commonly regarded by his friends as being nervous or suffering from nervous prostration. His conduct, however, is in marked contrast to that of the neurasthenic patient, who not only seeks the physician's advice himself, but also has at his tongue's end a long list of complaints. Again, the physical appearance of the neurasthenic betrays no somnolence; his features lack none of their accustomed expression; there is no lessening of the facial folds; it is still the same face to friends or relatives. It has not become altered so as to suggest that the patient is a changed man. The friends are never the ones to discover that the patient is ill, and indeed quite frequently listen to his complaints with impatience and incredulity. Finally, when his case is studied by the physician, it is found that he presents the symptom group of ready exhaustion so typical of neurasthenia without the slightest change in mental quality.

The friends of the paretic patient tell a very different story. Often they will maintain that his appearance and manner have changed, that he no longer attends to his business carefully nor does his work as well as formerly, and little by little the symptoms already detailed as characterizing the beginning of paresis (see p. 271) are elicited.

Of course as soon as physical signs begin to make their appearance, the diagnosis is very readily made, but at such time

the transition from the prodromal to the established period is already taking place.

Obviously it is the imperative duty of the physician, in every case presenting the slightest suspicion of paresis, and independent of any clinical history, to insist upon a serological examination. Here we have happily a means of diagnosis of great value. Four reactions are to be studied; *first*, the Wassermann reaction in the blood, which as we have already seen is positive in almost 100 per cent.; *second*, the Wassermann reaction in the cerebro-spinal fluid, which is positive in about 90 per cent. when 0.2 c.c. of fluid are used, and in 100 when larger quantities (*e. g.*, 2 c.c.) are used; *third*, the globulin test, termed by Nonne the "Phase I" reaction; *fourth*, the presence or excess of lymphocytes and other formed elements in the cerebrospinal fluid, commonly spoken of as lymphocytosis or pleocytosis.

For the benefit of such of my readers who are not in touch with laboratory methods, it may be briefly stated that the Wassermann test depends upon the presence of antibodies in the serum of the blood or in the spinal fluid. It will be recalled that the body which results from the union of an antigen and antibody is composed of two basic substances, one the ambo-acceptor and the other the complement. Complement binding—a reaction which was discovered by Bordet and Gengou—consists in the fact that when an antigen and its corresponding antibody meet the complement is held fast. This fact can be demonstrated by the addition of a hemolytic system; if the complement has been held fast there is no hemolysis.

The third reaction, the determination of the presence of an excess of protein, globulin, in the cerebrospinal fluid, depends upon the fact that the cerebrospinal fluid normally contains merely a trace of protein substances and that any appreciable increase has a pathological significance. Various methods

have been devised for the performance of this test, which it would be out of place to discuss here. Suffice it to say that the "Phase I" reaction of Nonne consists in the addition of a saturated ammonium sulphate solution to an equal quantity of spinal fluid. If the fluid becomes turbid three minutes after the addition of the ammonium sulphate solution, the reaction is positive.

The fourth reaction depends upon the fact that normally the cerebrospinal fluid contains very few formed elements. Of these, the small lymphocytes largely predominate. The number estimated as normal to the cerebrospinal fluid is variously given as five to six cells at the most per c.min. (Fuchs-Rosenthal) or eight per c.mm. (Kaplan). The borderline count is placed by Kaplan as high as nine to fifteen per c.min. Under pathological conditions this number may be greatly increased. Pleocytosis is always indicative of meningeal irritation or inflammation. The greater the increase, the more active the pathological process. In both paresis and tabes the increase is usually decided. The cell counts may range as high as fifty or sixty cells per c.mm. and at times into the hundreds. On the other hand, cases of tabes are met with in which an increase of lymphocytes is not present; evidently we have here to do with very chronic and inactive cases. Similarly in cases of paresis long stationary or very slow in course we may find counts ranging comparatively little above the normal, *e. g.*, eighteen or twenty-three per c.mm.

It should be mentioned that Alzheimer and others have placed especial importance on the finding of plasma cells in the cerebrospinal fluid. These are much larger than the lymphocytes with markedly staining nuclei. Their significance is, however, doubtful; many cases of paresis, as Kaplan points out, do not contain them.

Finally, the Wassermann reaction though present, as we have seen, in the great majority of cases, is occasionally absent both in the blood and in the cerebrospinal fluid. This fact is in keeping with the findings in tabes in which the Wassermann reaction in the blood may be absent in about 30 per cent. of the cases and may also be wanting occasionally in the cerebrospinal fluid. Obviously the absence of the reaction is consonant with a lessened or arrested activity of the spirochete and a consequent absence of antibody formation. Every now and then, though rarely, the clinical signs of paresis are indubitably present and yet we receive from the laboratory a negative serological report. Clearly, such a condition means a relative degree of quiet and, for the time being, of arrest of progress. However, in a suspicious case of paresis, *i. e.*, a case in which neither the mental nor physical signs are such as to permit of an absolute diagnosis, and in which, on the other hand, the case obviously cannot be classified under neurasthenia, psychasthenia, or other neurosis, we are left sadly in the dark. Of course, the old therapeutic test of tolerance to the iodids and mercurials may be tried and, if successful, may turn the scale. However, there is another laboratory test, which if available, may be applied. This is the colloidal gold test. This test depends upon the principle discovered by Zsigmondy that solutions of electrolytes precipitate colloidal gold; further, that under given conditions, *e. g.*, in the absence of electrolytes, proteins will do the same thing, and that in the presence of electrolytes, they inhibit precipitation. These facts have been applied by Lange to the examination of the spinal fluid. For the details the reader is referred to special works upon serology, for instance, that of Kaplan, or to the admirable articles of Fordyce. The test is performed with ten dilutions of spinal fluid. The negative reaction is indicated by a salmon red, while the various

degrees of precipitation are indicated by change of color in the tubes from red to red blue, lilac or blue, blue, blue gray or gray, to colorless. According to Fordyce, in paresis, precipitation of the colloidal gold occurs regularly in the first four to eight tubes with decolorization or a turbidity. To this series of changes the term "paretic curve" has now come to be applied.

Finally, emphasis should once more be laid upon the definite and positive value of the physical signs of paresis. While the great importance of laboratory reports should not be underestimated, the possibility of error should not be lost sight of, especially in the performance of the Wassermann test. Under all circumstances the clinical evidence, if positive, must stand.

Treatment.—Contrary to the plan pursued elsewhere in this volume, the writer has thought it wise, because of its highly special character, to consider the treatment of paresis in the present section. Since the introduction of salvarsan, renewed efforts have been made to gain control of this disease, or, at least, to make a more or less durable impression upon its progress. While positive statements as to the results achieved do not meet with general acceptance, it is, notwithstanding, justifiable to employ any means at our disposal in an affection which, when untreated, is invariably fatal.

The original employment of salvarsan by intravenous injections made little if any impression upon the course or progress of the disease. Paresis, as has been pointed out, is a parenchymatous affection, and one, therefore, in which remedies which might be efficacious in exudative syphilis of the vessels and membranes, would probably have but little effect. It was soon learned also that salvarsan diffuses little if at all into the cavity of the dura. Various attempts were then made to apply the remedy directly by means of intradural injections; for instance, by Marinesco, Robertson, Sicard and Lapointe, and others,

but it was the method of Swift and Ellis which finally came into vogue. In this method the patient receives an intravenous injection of salvarsan or neosalvarsan. After an interval of thirty to forty minutes, some 40 c.c. of blood are withdrawn from a vein. Swift and Ellis believed that the blood contains a maximum amount of salvarsan at the end of an hour; opinions, however, are divided and some physicians wait only twenty minutes.

The blood withdrawn is allowed to stand over night, the supernatant fluid is pipetted off, and then centrifuged at 3000 revolutions for a period of half an hour. The serum is then inactivated at a temperature of 56° C. Ten to twenty cubic centimeters, diluted with an equal or twice the amount of salt solution, are then injected intradurally. Usually the intraspinous injection is given about twenty-four hours after the intravenous. The patient either lies upon his side or sits upon the edge of the bed with his back to the operator. Before making the injection, considerable cerebrospinal fluid should be permitted to escape, say some 40 c.c. or more. The rule that we have followed in my own service is to allow the fluid to escape until all evidences of increased pressure have subsided, and at times until 60 or 70 c.c. have been drained off. After giving the injection, the patient is placed upon his back without any pillow under his head and the foot of the bed elevated some ten or twelve inches. This position is maintained for some three hours, after which the patient is allowed to assume a more comfortable position. For reasons which will become apparent later, I have not repeated this procedure more often than once in ten days or two weeks, and frequently it is wise to allow a still longer interval to elapse.

Ogilvie modified the Swift-Ellis method by mixing the salvarsan directly with the blood-serum outside of the body. Forty or fifty c.c. of blood are withdrawn. This is allowed to stand

three or four hours, the supernatant fluid is then pipetted off and thoroughly centrifuged. To this is then added one-fourth milligram of salvarsan, which has been dissolved in sterile water and neutralized in the usual way. This is thoroughly mixed with the serum and then the serum is incubated for an hour at body temperature and later inactivated at a temperature of 56° C. Usually about 10 c.c. of this serum is injected. The patient is also treated by means of ordinary intravenous injections of salvarsan. A method which has been developed by Wardner is that of injecting serum obtained by the Swift-Ellis method directly beneath the intracranial dura. The objections to this method are that the patient must be anesthetized and trephined. Another method has been devised by Byrnes which consists in adding bichlorid of mercury to the serum instead of salvarsan. The blood, about six ounces, is withdrawn and the serum prepared as in the Ogilvie method. One-fiftieth of a grain of bichlorid in solution is then added and the mixture well shaken to prevent precipitation, more serum being added if necessary.

Opinions differ as to the efficacy of the various methods of treatment. Cotton, for instance, believes that salvarsanized serum may bring about definite arrest in paresis. Dunton and Sargent, on the other hand, state that the duration of cases treated with salvarsan is less than normal. Mott is of the opinion that general paralysis has not been cured or even greatly benefited by salvarsan or neosalvarsan, no matter how administered. Cotton, again, points out the importance of treating cases in the early stages and that treatment must be persistent. Cotton further states that the number of remissions occurring under salvarsan is very much greater than those which occur spontaneously in untreated cases.

The Swift-Ellis method has been employed very extensively

in my own clinic in given cases with decided improvement. Remissions of more or less length have been established, and in a few instances these have proved of such long duration that they suggest that perhaps a permanent impression has been made. However, the fact that extensive remissions occur spontaneously and that untreated cases of paresis may have a very long duration, forbids a too sanguine expectation. It is perhaps significant, in my own experience, that improvement has been most pronounced in cases whose condition was not so advanced as to necessitate asylum commitment. In the asylum cases the results of treatment have been far less evident.

As an early result of the treatment, we frequently note an improvement in the mental symptoms and especially a reduction in the pleocytosis of the cerebrospinal fluid. Great caution must, however, be exercised in drawing our inferences. The late Thomas B. Earley and myself treated in my service a number of cases by intraspinous injections of *unsalvarsanized* serum, the serum having been prepared and inactivated in the usual way without the previous intravenous injection of salvarsan. To our great surprise this method was also followed by a fall in the lymphocyte count and the patients themselves also showed improvement. Finally, Gilpin and Earley tried in my clinic the effects of simple spinal drainage, and with truly remarkable results. At first they practised spinal drainage before giving the intravenous salvarsan injection in the hope of favorably influencing the diffusion of the salvarsan into the dural sac. Later they instituted simple spinal drainage alone. The improvement was most striking, as might have been expected, in tabes, but was also very evident in paresis. The patients are put to bed and drained of every possible drop of fluid about once in two weeks. There is, of course, a relief for the time being of the increased intradural pressure, but it is very probable

that drainage results in a kind of lavage of the dural space, because the spinal fluid, as we know, is rapidly replaced. In keeping with this there is also a fall in the lymphocyte count. Further, there must normally be a balance between the blood-pressure in the vessels within the cord and the pressure of the cerebrospinal fluid. If the pressure of the cerebrospinal fluid be increased, it will follow that the vascularity of the cord will be diminished; less blood than normally will be able to enter its vessels. It would appear, therefore, that the rapid withdrawal of the cerebrospinal fluid will be followed by an increase in the vascularity of the cord and, other things equal, of the brain as well. Probably the results—often truly remarkable—which follow radical spinal drainage are to be attributed to the improved nutrition following this increased vascularity. In other words, we have here a parallel to the results of the Bier method in surgery. Finally, it should be added that we have never noted any untoward results from spinal drainage in either paresis or tabes. That the diagnosis should definitely exclude brain tumor and abscess goes, of course, without saying.

It is difficult also to eliminate the factor of the effect of the mere trauma of the intradural methods. Relatively slight and sometimes more pronounced traumata, as past experience has shown, stimulate the resistance of the patient, cause him to react, and to be better for a time. Intercurrent infections have, at times, a similar result. Pilez, taking advantage of this fact, has inoculated his patients with cultures of erysipelas, and in the resulting reaction has noted the appearance of more or less pronounced remissions.

The above facts are of the very greatest significance and they are in keeping with the—for the time being—brilliant results occasionally achieved by rest methods alone, by methods which force up the nutrition of the patient and stimulate his defensive

reactions. (See Part IV.) It is, whenever practicable, important to combine the salvarsan or other special method of treatment with a systematic course of rest treatment in bed.

Finally, in order that the patient should receive the benefit of every possible means at our command, it is important that in the intervals of the salvarsan therapy he should be thoroughly treated with mercurials and perhaps iodids; especially is this true of the mercurials. Regarding the latter, however, it must be borne in mind that the resistance to mercury is greatly diminished in a patient under salvarsan therapy, and that the too free use of the mercurial may be followed by a serious involvement of the gums and teeth, by diarrheas and other toxic symptoms. This is one of the most remarkable facts attending the use of salvarsan. Ordinarily it is practically impossible to make a pronounced mercurial impression upon a paretic and yet under salvarsan he becomes relatively sensitive to the action of the remedy.

It is evident, when all the facts are considered, that the treatment of paresis is still most unsatisfactory. The germ is deeply embedded in the nerve substance and is practically beyond our reach. It is probable that the improvements observed are due to the favorable action of the various medicines upon such of the spirochetes as are accessible in the membranes and vessels. Only such a remedy as would be readily diffusible through the tissues and which would exercise its toxic action upon the germ without injury to the host—as quinin, for instance, acts in malaria—would fill, it would seem, the conditions presented by the problem of paresis.

CEREBRAL SYPHILIS

Cerebral syphilis of the exudative form is not accompanied by any special group of mental symptoms. Indeed, in the great mass

of cases, mental symptoms are absent. The patient presents the general symptoms of headache, somnolence, and possibly optic neuritis, together with special symptoms dependent upon the sites of lesions. These special symptoms consist of palsies, *e. g.*, hemiplegia and cranial nerve palsies of various kinds; it may be that epilepsies are present owing to involvement of the motor area, but of purely mental symptoms we meet with but few. That in long-standing cases of diffuse cerebral involvement mental weakness—a certain degree of dementia—may supervene need hardly be pointed out. The resemblance of such cases to paresis is, however, very remote. The physical signs of the latter affection are usually conspicuous by their absence. Notably is this the case with the tremor of tongue and lips, the atactic speech, the twitching of the facial muscles, the faint changing and fugitive incoördination of movement and allied phenomena. The pupillary phenomena, also, more frequently consist of gross dilatation of one pupil, associated, it may be, with other frank oculomotor palsies. An Argyll-Robertson pupil should always suggest parenchymatous syphilis, *i. e.*, paresis. The picture is a radically different one. The so-called cases of pseudoparesis are rejected by the writer as not belonging to syphilis of the exudative form, but are frankly classified by him, in accordance with an increasing experience, with paresis; they are really paretics. If they be followed, the special symptoms of paresis become more and more apparent; they are not cured by treatment, and the outcome is the same. It would seem that in a small percentage of cases of paresis—as is every now and then the case in tabes—the special degenerative changes taking place are also accompanied by late though active gummatous deposits still taking place in vessels and membranes. Perhaps we have to do here with a double infection, *i. e.*, two strains of the spirochete. Such cases are, however, none the

less cases of paresis, and, as just pointed out, are no more influenced by treatment as regards the eventual result than are ordinary cases of paresis.

MULTIPLE CEREBROSPINAL SCLEROSIS

Pronounced mental symptoms in association with multiple cerebrospinal sclerosis are infrequent. However, they are met with occasionally, and, it would appear that this is more likely to occur when the cortex is especially involved in the disease processes. Very curiously, the mental symptoms occurring in multiple cerebrospinal sclerosis may be inconstant and shifting, and may partake, in this respect, of the same remarkable peculiarity of the other symptoms. Just as palsies come and go, so may the mental symptoms come and go.

When present the mental symptoms are those of a dementia; sometimes hallucinations are present. Occasionally there is a very remarkable simulation of the symptoms of paresis. The tremor may not be coarse and widely atactic, but may resemble that of paresis, and this may also be the case with the speech. At the same time, a typical expansive mental state may make its appearance. That errors of diagnosis may be made under such circumstances is not surprising. After a time the mental symptoms may recede and a mild dementia with some depression may remain. As the disease progresses, the signs of multiple cerebrospinal sclerosis assert themselves and the diagnosis becomes clear. The Wassermann reaction, too, is persistently negative. The true nature of the case, however, may not be recognized until the autopsy.

ARTERIOSCLEROSIS

Arteriosclerosis often exists in a marked degree without there being any mental symptoms of moment; this is time and again the case when the autopsy reveals a marked atheroma.

of the vessels of the base. However, symptoms do make their appearance in given cases, and it is extremely probable that in such instances the smaller and finer cerebral vessels, those which supply the cortex, are also, or, it may be, especially involved. The cortex may then suffer because of the serious interference with its blood supply.

The symptoms when present are those of ready mental fatigue, loss of energy, and spontaneity. In addition, the patient may be easily disturbed and irritable. Further, he can no longer do as much work nor can he do it as well as formerly. Memory also becomes somewhat impaired. At times he is somewhat sleepy and even somnolent during the day; at others the sleep at night is much disturbed, and even a well-marked insomnia may be present. Very often the patient complains of dizziness or suffers from attacks of faintness. Quite frequently, also, he complains of numbness or of paresthesias of the feet and legs or it may be of the fingers. The reflexes are never characteristically changed; sometimes normal, sometimes a little exaggerated, less frequently diminished. The pupils are normal. In some cases the mental symptoms are more pronounced. In such cases the latter suggest those of a premature senility, there being a simple and uncomplicated mental loss more or less marked. In other cases, again, the patient complains of headache or other distressing sensation in the head, and, in addition to the lessened capacity for work and impairment of memory, may be apathetic or slightly confused and hallucinatory; rarely the confusion is marked; still more rarely does he have attacks of stupor. At other times the patient is agitated, or it may be depressed, fearful, and suspicious. He may even evolve persecutory ideas. At times a melancholia is simulated and attempts at suicide are known to occur. The toxic symptoms present are doubtless to be referred, in part at least, to

associated interstitial changes in the kidneys; possibly also in the liver and other organs.

Now and then, in arteriosclerosis, apoplectiform crises or, less frequently, epileptiform seizures are observed. These may be accompanied or followed by hemiplegias or other palsies. The latter may be temporary, and the attack may suggest a serous apoplexy rather than one due to hemorrhage or obstruction. At such times aphasia and other localized phenomena may be present.

The age of patients suffering from cerebral arteriosclerosis with mental symptoms ranges from about fifty to sixty years. The patients finally die of myocarditis, nephritis, bronchopneumonia, or some other complication; or, a cerebral hemorrhage, thrombosis, or embolism may occur, followed by the usual train of associated symptoms.

HEMORRHAGE, EMBOLISM, AND THROMBOSIS

When mental symptoms occur in a case of focal vascular lesion of the brain, they constitute a group added to those ordinarily presented by the lesion in question. Thus, there is usually a hemiplegia with the common physical signs; if right-sided, aphasia in some form is present. Such patients may, in addition, reveal general mental enfeeblement, due to the general arterial degeneration present in such brains. Quite commonly mental impairment, if evident previous to a cerebral apoplexy, becomes more pronounced subsequent to such an attack; in other words, the local lesion may depress the nutrition of the brain as a whole. These symptoms are generalized in character and resemble those due to arteriosclerosis. A mental feebleness, impairment of memory, irritability, and occasionally a tendency to depression and tears are noted. Not infrequently the dementia becomes quite

pronounced. At times, also, a mild confusion may supervene; at others, states of excitement with hallucinations and delusions. On the whole, however, marked disturbances are infrequent. It is not necessary to point out that dementia should be clearly differentiated from the aphasia or apraxia that may be present. While aphasia is itself, as pointed out by Marie, an intellectual deficit, it must not be confused with that generalized loss of mental faculties which constitutes a dementia.

BRAIN TUMOR AND BRAIN ABSCESS

In many cases of brain tumor the symptoms are limited to headache, vomiting, vertigo, optic neuritis, and such focal symptoms as may be present when the tumor involves areas of the cortex which yield special reactions, such as focal epilepsy, aphasia, astereognosis, hemianopsia, and the like. In about two-thirds of all cases mental phenomena are added. The latter, in the larger number, are general in character, and doubtless depend upon causes which affect the function of the cerebrum in its entirety, such as increase of the intracranial pressure, interference with the arterial supply or the venous return; in some cases an intoxication of the cortex, the result of the secretion of poisonous substances by the tumor or of its degeneration, seems to be present. The patient is apt to be dull, heavy, obtunded. There may be a distinct mental diminution, depression, and torpor. The patient is relaxed, indifferent, forgetful, lacks normal spontaneity, tires quickly, loses both the capacity and the initiative for work. Often he is childish, silly, causelessly cheerful. Sometimes he is stupid, drowsy, somnolent. He may be decidedly confused; even hallucinations may be present. Sometimes a fictitious memory, a tendency to fabrication, as in Korsakow's psychosis, is noted. Mental impairment may be very evident. In given cases the

patient is much dazed, and may assume automatic or catatonic attitudes.

Brain tumors vary greatly as to the degree in which these general symptoms are present. There are some cases in which they never make their appearance, even though the growth itself be large. Quite commonly, too, when present, they are relatively insignificant and of little moment. It would appear that the rate of development of the tumor is at times a factor of moment; general mental symptoms are sometimes entirely absent when this is slow. Again, the degree of the involvement of the cortex, either directly or indirectly, as by invasion by the growth, involvement of the pia in inflammatory processes, or the possible action of toxins upon adjacent portions of the cortex, are factors which also influence the appearance of mental symptoms.

The mental symptoms vary somewhat, or present special features, according to the cortical areas or other portions of the brain involved. Thus, the majority of observers are agreed that tumors of the frontal lobe are apt to present greater intellectual disturbances than growths elsewhere; there is a greater mental obtusion, a greater interference with memory. Sometimes, as in one of my own cases, the symptoms at first sight suggest paresis. In addition, a distinct tendency to form unexpected associations, to make puns and jests may be present; a symptom which the Germans have called "Witzelsucht." Pfeifer, however, denies that these symptoms are any more pronounced with frontal tumors than with tumors elsewhere. He regards, in left frontal tumor, aphasic symptoms as of value; also impairment of the static function. Sometimes ataxia is a symptom of frontal tumor, though this is of course not a mental symptom.

Tumors of the motor area are manifested by focal convulsive attacks and other purely focal neurologic features. The

general mental symptoms of brain tumor may also be present; it would appear that in addition such patients are a little more irritable, become excited, depressed, or angry more readily—just as does the ordinary epileptic—than when the tumor is situated elsewhere. However, this factor must be regarded as of doubtful value. Tumors of the parietal lobe may be accompanied by such localizing phenomena as astereognosis; there may be distinct psychic losses in the recognition and interpretation of foreign bodies by touch. These symptoms, however, belong to the domain of nervous phenomena rather than of insanity. If the tumor be in the left parietal lobe, and contiguous to or pressing upon the temporal lobe, aphasic symptoms may be present. In the left temporal lobe sensory aphasic symptoms, in addition to the general mental symptoms of brain tumor, may be present. In such instances, if the mental symptoms be pronounced, the clinical picture may be quite complicated. In occipital tumors, such well-known phenomena as hemianopsia, alexia, optic aphasia, may be observed. Special mental symptoms can hardly be said to be present, save that visual hallucinations—even in patients who are entirely blind—may occur; one of my patients had frequent dreams with vivid scenes and pictures. On the whole, it may be said that hallucinations, both of hearing and vision, occur more frequently in tumors of the occipitotemporal regions.

Tumors limited to the centrum ovale are not apt to present mental symptoms; however, if they be large, mental impairment general in character may be noted. Tumors of the callosum may present somnolence, confusion, ready fatigue, and frequently very marked general mental loss; probably there is a distinct relation of these facts to the degree of destruction of the great commissural fibers connecting the corresponding areas of the

two hemispheres. Diplegia, incomplete and asymmetric, may be one of the neurologic findings. Pfeifer regards the mental symptoms of tumors of the callosum as of general value only, and does not look upon them as distinctive. Tumors of the pons and crura are rarely attended by mental changes. Cerebellar tumors are sometimes attended by general mental symptoms, doubtless because of the general intracranial disturbances caused by these growths when large; mild confusion and even hallucinations have been noted.

It is important to add that every now and then hysterical symptoms are present in brain tumor, and may be so pronounced as to mask the underlying disease and lead to errors of diagnosis. In conclusion, it may be said that the mental symptoms proper which accompany brain tumor are in a sense adventitious; only occasionally can they assist in the diagnosis. The latter must be chiefly based upon the well-known classical signs and localizing symptoms. It is important, however, to know that mental symptoms, pronounced in character—even delirium—may complicate the otherwise orderly clinical picture.

Brain abscess may be attended by hebetude and more or less marked obtusion. Sometimes confusion is present; the patient does not know where he is, does not understand what is said to him, is restless, resisting, delirious. Most frequently active mental phenomena are absent. Occasionally, and this is most important, convulsions are present which may simulate epilepsy, on the one hand, or hysteria on the other.

TABES

Following the discovery of the *Treponema pallidum* by Schaudin and the still more convincing discovery by Noguchi of the parasite in the brains of paretics, the tendency was at first to conclude that all nervous syphilis is the same (see p. 294) and also to break down the distinguishing landmarks between

paresis and tabes. It has become necessary to emphasize the distinction between the two great parenchymatous or—to employ an old term—parasyphilitic affections. The general distinction between tabes and paresis has long been admitted; it is the occurrence of taboparesis—*i. e.*, the form in which spinal symptoms appear early—which has tended to obscure the subject. The knee-jerks may in taboparesis be much diminished or even lost. If at the same time incoördination is noticeably absent, the picture of a tabes with little or no ataxia may be simulated. However, certain striking differences obtain between taboparesis and tabes. In the first place, the history of tabes is one of very slow and gradual evolution. There is a history of difficulty of walking in the dark, of unsteadiness in the mornings while washing the face, of shooting pains more or less severe, of gastric crises, of delayed sensation in the feet and legs, of disturbances of micturition. Early, too, the ataxia becomes a marked feature. Finally, pupillary disturbances make their appearance. These differ notably from those met with in paresis. Most frequently they consist of a narrowing of the pupils, *i. e.*, a myosis, with an early impairment or loss of the light reaction. It is to be especially noted, further, that in tabes the pupils are equal; inequality is excessively rare. Finally, the impairment of the light reaction is the same on the two sides; sluggishness and the degree of loss are not more pronounced on one side than on the other.

In taboparesis, the evolution of the symptoms may be somewhat slow, but, as a rule, it is far more rapid than in tabes. Mental symptoms also make their appearance, so that the real nature of the case early becomes apparent. Again, incoördination though present in taboparesis is rarely so pronounced as to play a striking role. The writer has never in a case of taboparesis elicited as a beginning symptom a history of difficulty of walking

in the dark or of unsteadiness in the mornings while washing the face. Shooting pains also form no, or a very inconspicuous, part of the early history, and at no time do they constitute a prominent or striking feature. Gastric and other crises, it may be safely stated, are excessively rare. Delayed sensation in the feet and legs is equally absent; at most a mild hypesthesia, widely diffused but not attended by delay is observed. Disturbances of micturition also form no feature of the early history of taboparesis. Further, the disturbances of the pupil in paresis are peculiar. Long before the light reaction disappears, it is noted that the pupils are unequal, the opposite condition to that met with in the great mass of true tabes. This inequality may be shifting in character, absent at one time, present at another. At the same time it may be noted that one or both pupils are irregular in shape. A pupil may be oval, ovoid, or its circumference may be irregular, the circle may be slightly flattened as by a cord, or it may be slightly angled. This irregularity, like the inequality, is usually changing and shifting, present at times and absent at others; the pupil may indeed change its shape while under observation and thus justify the designation "ameboid pupil." Finally, the two pupils may react unequally to light; the reaction may upon one side be prompt and normal, upon the other sluggish or lost. In tabes the changes in the pupils consist for the most part in symmetrical departures from the normal both in size and light reaction. The reason for this is probably to be sought in the fact that in tabes the myosis and fixation are to be attributed to changes in the cord, while in paresis they are directly due to involvement of the brain—of the oculomotor nuclei and of the intracranial mechanism upon which the shape and movements of the pupils depend. In short, tabes stands in bold contrast to paresis both in its course and final termination.

In the great majority of cases of tabes the mental condition is good throughout. Many instances can be cited of tabetics who fill important positions, follow pursuits and vocations which demand not only entire sanity, but often very unusual qualifications. Among them we find physicians, lawyers, business men, men of affairs. Finally, tabes is a disease of a life-time, not of a few years, as in paresis; and when tabetics die, they do not die of a dementia, but of disease of the heart, of the aorta, of an arteriosclerosis, of infections of the bladder, of disease of the kidneys, or other visceral complications. There is nothing in tabes itself—at least this is the uniform result of clinical experience—which leads to mental change. When such changes notwithstanding supervene, we should, other things equal, revise our diagnosis to that of paresis of the ascending form, or change altogether to that of an exudative rather than a parasyphilitic affection; *i. e.*, to a cerebrospinal syphilis.

Of course a tabetic patient may acquire a mental disease as may any other person. A tabetic who uses alcohol to excess may pass through a delirium tremens or an alcoholic confusion. Sometimes other intercurrent mental maladies are observed. It cannot be said, however, that tabetics possess a special vulnerability; thus they rarely become much depressed, in spite of their pains and deplorable condition. Suicide is practically unknown among them.

TRAUMA

Severe trauma of the head may be followed by transient or persistent mental symptoms. The patient may be dazed, partially stunned, or there may be complete loss of consciousness from concussion. If the injury has been moderate in severity, the patient may merely turn pale, become dizzy, confused, may stagger and perhaps fall. Usually, after a

variable period of quiet, he recovers from the blow and subsequently presents no symptoms, save perhaps, for a time, headache and indisposition for exertion. Frequently no symptoms whatever persist. If the blow has been severe, the patient falls to the ground unconscious and presents the physical signs of shock. He is very pale, his extremities cold and moist, and the pulse very weak and rapid. Sometimes he will respond when spoken to loudly, but usually his answers are unintelligible. The degree of unconsciousness varies, of course, with the violence and the damage to the intracranial contents, and this is also true of the detailed physical signs. If there has been no extensive extravasation of blood there will be no palsies; sometimes, however, convulsions are observed. The pupils are commonly dilated, though they may be contracted; if unilateral hemorrhage exists, as, for instance, from the middle meningeal, there may be a dilated pupil on the same side (Hutchinson's pupil). If there have been no gross lesions, the patient usually reacts and becomes conscious within twenty-four hours. Frequently he vomits as the reaction comes on. Usually, too, the patient complains of headache and vertigo.

It is probable that blows sufficient to give rise to concussion are followed by actual damage to the cranial contents, membranes, vessels, and brain substance. In the case of the membranes and vessels, we probably have to deal with contusions and minute hemorrhages, and, in the case of the brain substance, with changes which, though less understood, are probably also structural in their nature. It is not surprising, therefore, that mental symptoms may persist after the patient has recovered from the immediate effects of the accident.

The patient may be more or less confused for days, weeks, or even months following a severe concussion. The confusion

may be severe, but usually it is mild in type, accompanied by headache, dizziness, and other distressing sensations. Sometimes the patient has no recollection of the accident or of the events of some hours or a day or more preceding; *i. e.*, there is present a retro-anterograde amnesia. The patient is also irritable, depressed, and usually slow in response. As time goes on he usually improves; the improvement, however, may be very slow. In other cases permanent mental weakness results, a true traumatic dementia.

Instead of the picture of a confusion supervening, a delirium may, after some days, make its appearance. It is extremely probable that, when this is the case, an inflammatory reaction involving the membranes or possibly the brain substance has taken place; *i. e.*, that a localized traumatic meningitis or encephalitis has developed.

It is important to differentiate confusion and delirium the result of actual physical injury of the cranial contents, from the purely functional nervous disturbances which sometimes follow the fright or psychic shock of an accident. The latter do not differ from the functional troubles ensuing from accidents in which the head is in no way involved. As a rule, they assume the form of hysteria; quite commonly they prove of little consequence unless there is present the element of litigation. True mental disease, other than the confusion, delirium, and dementia resulting from destructive injury of the cranial contents, never supervenes. Fright, such as leads to hysteria, never produces mental disease. It is perfectly true that persons suffering from hysteria may also be depressed and nosophobic, but I have never observed a real psychosis develop in such a case. Melancholia, for instance, is never caused by trauma; not even can the value of an exciting cause be ascribed to trauma. One of my own patients, who had suffered from several

attacks of melancholia, each one of which had necessitated her commitment to an asylum, suffered during one of her normal intervals from a trolley accident in which she received a rather severe blow on the head. She developed subsequently not a melancholia, but a typical hysteria; one, too, which persisted for many months until litigation ceased, when it finally disappeared. What is true of melancholia, it need hardly be added, is also true of the other psychoses. For instance, if a dementia præcox is discovered in a patient following a trauma, it is safe to infer that the mental affection antedated the accident; or in any event that a causal relation does not obtain.

6. PREGNANCY, PARTURITION, THE PUERPERIUM, LACTATION

Pregnancy, labor, the puerperal state, and the subsequent suckling of the offspring being basic, racial functions, and in themselves essentially and intrinsically normal, cannot of themselves cause insanity. Other facts must of necessity play more or less important rôles in the etiology. Principal among these is that of a neuropathy, usually inherited; quite commonly we elicit a history of mental disease in the ancestry, and at times even a history of mental breakdowns occurring in the women of a family at the puerperal periods. It is observed, too, that patients who have passed through attacks of insanity independently of pregnancy may again become insane when a puerperal period supervenes. This does not, however, necessarily follow; in a case of manic-depressive insanity, for a long time under my observation, the patient passed several times through pregnancy without incident; indeed, she seemed to be more nearly normal at these times than at others.

In the causation of the mental breakdowns there may be, in addition to a pre-existing neuropathy, also the factor of exhaustion. This exhaustion may follow previous disease,

long-continued overwork or nervous overstrain; that is, it may follow a pregnancy occurring in an already greatly debilitated patient. More powerful, however, than exhaustion are fright, shock, grief, and especially the worry and shame incident to an illegitimate pregnancy. Finally, into insanity occurring in the lying-in period there may enter the factor of infection.

The insanity which supervenes during pregnancy may manifest itself shortly after conception, though much more frequently it comes on much later, that is, about the sixth or seventh month. In some women there is, after conception has occurred, an irritability, a change in character and disposition, which persists during the first few weeks—sometimes during the first two or three months. Not infrequently this is accompanied by an unwonted or exaggerated degree of nausea and vomiting; at times, also, by unusually marked perversions or "longings" as to the food which the patient desires. Ordinarily these symptoms sooner or later disappear; indeed, rather early in most cases. Rarely, however, distinct mental symptoms make their appearance. In such case the patient becomes depressed, perhaps confused, and gives way to painful delusions of ill-treatment, abandonment and, it may be, of being illegitimately pregnant; sometimes hallucinations make their appearance. As a rule, the mental disturbances of the early period are rather mild in type; rarely is there excitement; *i. e.*, the clinical picture is usually that of a mild confusion with painful depression; delirium is infrequent. The actual fact of illegitimate pregnancy, with its attendant worry and suffering, may, in given cases, be a powerful contributing factor; however, it is not of itself sufficient in an otherwise healthy woman to produce insanity; it may, it is true, eventuate in suicide or other tragedy, but this is not the outcome of disease.

Mental symptoms making their appearance in the early period of pregnancy, say before the fourth month, usually disappear long before pregnancy is terminated, and the labor and lying-in period may in such cases progress in an entirely normal manner. There are, of course, exceptions to this rule.

When the symptoms appear in the second half or later months of pregnancy, the clinical picture is similar, save that the symptoms are more pronounced. The depression and confusion are more marked, and the hallucinations and delusive ideas are more insistent. They are of the same painful character, and deal with abuse, ill-treatment, abandonment, illegitimacy, denial of paternity, and the like. Finally, the mental symptoms, instead of disappearing, frequently persist after pregnancy has terminated, at least until the puerperium has been completed and sometimes longer. On the whole, it should be added that insanity of pregnancy is rare. When occurring it is not improbable that the patient, for some as yet unexplained reason, suffers from a toxic metabolism. The prognosis is almost uniformly good.

Not infrequently the insanity met with during pregnancy is spoken of as a melancholia, a term which is obviously incorrect. A patient in the depressive phase of a manic-depressive cycle may, of course, pass through a pregnancy, but, as already pointed out, a causal relation does not obtain. Similarly a pregnancy may occur in the course of a dementia praecox, in which case hebephrenic, catatonic, or paranoid phenomena may make their appearance during the pregnancy or subsequently. It would be obviously incorrect to attribute the insanity in such a case to the pregnancy, the puerperium, or the subsequent lactation. On the other hand, pregnancy seems at times to hasten or to favor the development of a dementia praecox, as though a disturbed metabolism or exhaustion of

the sex glands played a rôle. (See also p. 131.) Obviously, because of the unfavorable prognosis of dementia praecox, its proper recognition under these circumstances is of the utmost importance.

Every now and then mental symptoms make their appearance during parturition. The shock and excitement of labor may in a neuropathic individual be accompanied or followed by a delirium. Usually such a delirium is of brief duration. It is only when uremic or convulsive phenomena are also present that the symptom is of consequence. Ordinarily the delirium is transient and of little significance. Further, it is very rare.

The insanity that supervenes during the lying-in period is alike the most frequent and the most important. As in the insanity of pregnancy, there is a previously existing neuropathy; toxic elements are, however, very important factors. After delivery there is a marked change in metabolism; the enlarged uterus undergoes rapid involution and absorption, while the mammary glands become engorged and active. It is not improbable that, owing to an abnormal metabolism, a defective reaction of the glands of internal secretion, an imperfect oxidation, or other cause, large amounts of toxic substances find their way into the circulation. Rarely does infection play a rôle; time and again cases are observed in which neither the general nor the local signs of infection are present; that is, neither rise of temperature nor the physical evidences of infection of the genital tract. Exhaustion, shock, and fright also play a varying rôle.

Puerperal insanity is often spoken of as puerperal mania; in reality it is not a mania, but a delirium. It is more frequent after the birth of the first child; again, it occurs somewhat more frequently in persons who begin bearing children late;

finally, attacks not infrequently recur with each succeeding pregnancy, though this is not invariable.

The onset is preceded, as a rule, by certain suggestive symptoms. The patient ceases to do well; she becomes anxious, nervous, irritable, and depressed; at times she manifests an unnatural aversion for the child or for the husband. She loses her appetite, the skin is pale, and the bowels constipated. She becomes sleepless and great weakness makes its appearance. The milk and lochia usually become diminished or suppressed, though in some cases they are not, at first at least, markedly influenced. Finally, after a variable period, delirium makes its appearance. Sometimes prodromata are not observed, and in such case the mental symptoms make their appearance suddenly. Usually the onset occurs within the first two weeks, quite frequently as early as the fifth or sixth day, or it may be not until the ninth or tenth day; after the patient has begun to leave her bed.

At the time of the onset the patient becomes obtunded and confused, and hallucinations, illusions, and delusions make their appearance. Soon an active delirium supervenes which reaches a high degree of intensity; the patient becomes greatly excited and noisy. Hallucinations of vision are numerous and vivid; this is also true of hallucinations of smell; those of hearing seem to be less prominent. The delusions are unsystematized, changing, and fragmentary. The picture presented does not differ from that seen in ordinary delirium. (See p. 46.) As a rule, puerperal delirium persists with great activity for several days or possibly a week or two, after which the intensity of the excitement is somewhat less, and the symptoms persist as an active confusion (see p. 50) for several months; four months is not unusual, and much longer periods are frequent. Sometimes the excitement is moderate throughout and convales-

cence begins after six or eight weeks. Such a favorable course is, however, unusual. After a time the excitement diminishes, the confusion becomes less pronounced, the patient begins to recognize her surroundings, and, lastly—and most important of all—begins to realize that she has been ill, takes her food willingly, and convalescence becomes established. The symptoms and course of an attack vary greatly in different cases. The prognosis of puerperal insanity is almost uniformly good. However, exhaustion sometimes becomes extreme, and second and third attacks are less promising than the first. Visceral complications are infrequent.

Every now and then, in persons of a neuropathic history or make-up, insanity makes its appearance during the period of lactation. Usually, several months elapse before the symptoms are observed. As a rule the patient passes through a prodromal period of exhaustion, and, toward the third or subsequent months of nursing, the patient becomes much depressed, confused, and hallucinatory; in other words, the patient passes through an attack of confusion with painful hallucinations and delusions. Quite commonly the excitement is moderate in degree, though it may be subject to marked exacerbations in which the patient is much agitated. The delusions betray nothing characteristic; they are fragmentary, changeable and always painful and distressing. The confusion does not differ from that met with in the other exhausted states. (See p. 49.) Sometimes there is fear of impending death; sometimes aversion to the child. That the patient should be promptly separated from the child need hardly be pointed out. The duration of the insanity of lactation is always a number of months—three, four, or longer. Its pathology, also, is clearly that of a toxic metabolism.

CHAPTER II

MENTAL DISEASES AS RELATED TO AGE

HAVING studied the clinical forms in which mental disease presents itself, and the relation of these forms to the somatic affections, it is next in order to approach the subject from the standpoint of age. In so doing, we will pass over ground much of which is familiar, but some of which is new.

Age may be conveniently divided into six periods:

- (1) Infancy, the period from birth to puberty;
- (2) Adolescence, the period from puberty to adult age;
- (3) Early Adult Age;
- (4) Mature Adult Age;
- (5) Middle Age; and
- (6) Old Age.

Such a division, though largely arbitrary, is clinically useful.

When we take up the period of infancy, we find at once that the subject resolves itself into a consideration, first, of insanity in children and, second, of mental deficiencies the result of arrested development or gross pathologic conditions.

INSANITY IN CHILDHOOD

Insanity in childhood is excessively rare. It must be clearly differentiated from idiocy and imbecility. Insanity, we will remember, consists in a change in the quality of mind; *i. e.*, a change in the manner of thinking, acting, and feeling, while idiocy and imbecility are states of quantitative defect. It is a remarkable fact that, as regards mental diseases, the influence of heredity does not make itself felt in a decided way until

after puberty or until adult life is reached. However, children sometimes present suggestive premonitory signs. Thus, instead of presenting the purely objective and aggressive attitude of the normal mind in childhood, the child may be self-conscious and introspective. It may manifest excessive shyness, self-distrust, unreasonable fear. It may be morbidly conscientious; it may make premature profession of religion, may confess to imaginary sins, or may manifest a veritable religious exaltation. At times the manic-depressive make-up is distinctly foreshadowed. Typical melancholia and typical mania are, however, excessively rare. It should be added that suicide in childhood is also very infrequent. When children commit suicide they do so usually to avoid punishment, to avoid the consequences of some act of disobedience, or, it may be, to escape cruelty. Sometimes the act is originally a pretence to excite sympathy, pity, or mercy, but in which the pretence is carried too far. Rarely, if ever, is the suicide the result of ideas of self-accusation or of the unpardonable sin.

Sometimes the child develops tics, little tricks of movement, habit spasms, or other symptoms strongly suggestive of the neurasthenic-neuropathic—the psychasthenic—disorders. (See Part I, Chapter VI.) Less frequently it manifests a well-defined special fear, a well-defined indecision or aboulia. As a rule, when such symptoms are present in children they are, as we have seen (*loc. cit.*), generalized in type.

Again, very rarely, dementia praecox appears before puberty. In one of my own cases the patient, a boy, manifested clearly the depressive and hallucinatory phase at eight years of age; the hallucinations were many of them very vivid; those of hearing were in part described as pistol-shots, and were attributed to men who were trying to kill the patient.

Equally rare is the condition which Sander has described as

"originäre Verrücktheit," *paranoia originaria*. At a very early age the child, in whom a neuropathic heredity is usually quite pronounced, presents an introspective attitude of mind. He is less happy, less cheerful than other children. He is morbidly sensitive and easily irritated or depressed. Often he suffers from dreams which seem to prolong themselves into the waking period. Soon he believes that he is being neglected by his parents, that he is not being treated as well as his brothers and sisters. At the same time it is noted—and this is a striking feature of his case—that he is precocious sexually. This precocity is characterized by erotic dreams and erotic ideas, and may also be accompanied by premature physical sexual development. At the same time delusions, at times persecutory and at times expansive, manifest themselves. As in *paranoia* of the adult, the patient may believe that he is born of a great family, that he has been substituted in the cradle, that great riches and a great future lie before him. The progress of the affection is often interrupted by intervals of improvement; often the course is very irregular. In time mental weakness, more or less pronounced, supervenes and a dementia terminates the picture. The symptoms suggest that we have here to do with a very early form of *dementia præcox*; possibly, as Kraepelin thinks, a rapidly deteriorating *hebephrenia*. The unusual sexual precocity points strongly to disease of the pineal gland, and it is not impossible that disease of the internal secretions, more especially *hyperpinealism*, plays here a rôle. The relation between pineal excess and sexual precocity, a knowledge of which we owe especially to von Frankl-Hochwart, makes such a view highly probable.

In addition to the mental disturbances above noted, children of course suffer from the mental affections of the first group—*delirium, confusion, and stupor*. *Delirium*, as met with in the

febrile periods of the exanthemata and other infections, is the common mental disturbance. This has already been sufficiently considered. (See p. 35.) Occasionally a protracted excitement with delirium follows shock or fright. Confusion, too, more or less persistent, may succeed a delirium, or may make its appearance during the postfebrile period of one of the exanthemata, but it is quite rare. This is also true of stupor, though the latter is met with somewhat more frequently; *e. g.*, after typhoid fever.

Finally, children, the victims of inherited syphilis, may present a dementia or may suffer from juvenile paresis. (See p. 270.)

IDIOCY AND IMBECILITY

Idiocy and imbecility are, as already pointed out, states of mental deficiency. The idiot is a child in whom this deficiency is gross and is evident at birth or within a short period after birth; *i. e.*, a few months, two or three years. The imbecile is one in whom the deficiency does not become apparent until much later; not until a number of years have passed—it may be, not until puberty is reached or until adolescence is well advanced. The law, we will remember (see p. 21), defines the idiot as a child born without mind and the imbecile as an adult with the mind of a child. Both definitions, as already pointed out, are excessive, and yet are useful as accentuating the essential features of the two conditions. However, a sharp distinction cannot be drawn between idiots and imbeciles, and in practice we are in the habit of grouping them together under the general caption of feeble-minded children; quite commonly, too, the entire group is spoken of as idiots, who are then classified in accordance with the degree of their mental deficiency into low-grade, middle-grade, and high-grade idiots. Such a classification enables teachers to group together cases requiring similar kinds of management and training. A more

comprehensive classification, however, one which enables the physician to at once place a given case in its proper nosologic relations, and which the writer has employed for many years, is the following:

1. Idiocy presenting general morphologic changes; *i. e.*, arrests of development and deviations.
2. Idiocy presenting gross pathologic lesions of the nervous system; *e. g.*, the hemiplegic and diplegic idiots.
3. Cretinism.
4. Amaurotic family idiocy.

MORPHOLOGIC IDIOCIES

The idiots with morphologic abnormalities are those in whom the organism has failed to unfold or develop either in the normal manner or to the normal degree. They present, other things equal, anomalies of the head, features, trunk, and limbs, all expressive of arrest or deviation. Thus, the head may be unusually small, the forehead unusually low and narrow, the palate deep, irregular and narrow, the dentition defective or anomalous, the lobes of the ears absent or confluent with the cheek, the pinna irregular, expanded, crushed or flaring, with perhaps an exaggerated Darwinian tubercle. Similarly the nose may be altered in shape, flattened, sunken in the bridge, or the nares divergent. The digits may show irregularities of length and development, as may also the limbs and the trunk. If the opportunity presents itself of examining the brain, the latter may be found to be abnormally small (microcephalic), to present an unusual paucity or simplicity of fissures and convolutions; or anomalies of fissures and convolutions may be observed suggesting conditions met with normally in the apes and monkeys. In short, the idiot with morphologic stigmata is analogous to a bud, which, owing to some inherent defect in growth

—an agenesis—or, owing to the retarding influence of disease inherited or congenital, is withered or is deflected from its normal pathway of development.

Among the most interesting forms in the group of morphologic idiots are those in whom the outward appearance simulates that of some race of mankind other than that from which the patient springs. The most frequent of these is that known as Mongolian idiocy. In this there is an unusual degree of brachycephaly, together with an unusual lateral expansion and height of forehead; often there is also a certain obliquity of the palpebral fissures. The Chinese-like appearance of these children is often very striking. In other cases there is a distinct negroid shape of the skull and of the features, and even at times an unusual pigmentation of the skin. Other racial forms, such as the Malay and Red Indian types, have been described; I have not, however, myself seen clearly marked instances of these.

PATHOLOGIC IDIOCIES

Idiots with gross pathologic changes, such as hemiplegia and diplegia, occur with considerable frequency. There is always present a lesion of one or both hemispheres, involving, among other parts, the motor area. Quite commonly the lesion has its origin in difficult and delayed labor; indeed, the cases are often spoken of as birth-palsies. They are frequently due to prolonged compression or constriction of the head, in which there is a more or less extensive extravasation of blood over one or both hemispheres. The hemorrhage appears to arise from the veins, near or at their entrance into the superior longitudinal sinus. In cases which reach autopsy extensive hemorrhage is found over the vertex, on one or both sides; it may extend downward over the lateral aspect and anteriorly and posteriorly to a variable degree. If the child survives, a

hemiplegia or diplegia follows, due to failure of the upper motor neurones and tracts to develop. A similar arrest takes place in the adjacent areas. Occasionally marked loss of substance occurs, together with the formation of a cyst, which extends from the general brain surface downward to a variable depth; a so-called porencephalus. Sometimes there is atrophy and sclerosis; the sclerosis may be confined to a few convolutions or may be widely diffused.

Much less frequently the hemiplegia or diplegia does not arise at the time of birth, but occurs subsequently and then usually has its origin in some infection. Thus, it has been known to occur during or following scarlet fever, measles, whooping cough, diphtheria, typhoid fever. We have here likewise to deal with damage to brain tissue secondary to involvement of membranes and blood-vessels.

Finally, more rarely, the cerebral palsy is prenatal in its origin. In some cases simple prenatal arrest, an abiogenesis, seems to be the causal factor. However, pathologic conditions occurring in intra-uterine life, such as ependymitis, meningitis, and vascular lesions, the results of infections, seem to be the more common causes. Some of these cases are classified under Little's disease.

Occasionally an idiocy due to gross pathologic change finds its explanation at the autopsy in an extensive atrophy, brain tumor, or other gross lesion, such as hydrocephalus. The symptoms in a given case will or will not include those of hemiplegia in accordance with involvement or absence of involvement of the motor area and pathways.

CRETINISM

Cretinism is the term applied to myxedema occurring in children. Like myxedema in the adult, it is due to a more or less marked hypothyroidism. (See p. 245.) The thyroid gland

may fail to develop or may undergo atrophy before birth; *i. e.*, there is in many cases a congenital thyroid deficiency. In others, the child is apparently normal at birth and evidences of thyroid disease may not be noted for several years; usually, however, the symptoms appear within the first five years, exceptionally only are they delayed as late as puberty or adolescence.

The physical signs presented by the cretin are very striking. We note at once that the stature is much dwarfed and that the skin everywhere presents a diffuse jelly-like infiltration. The latter is most marked in the face, hands, and feet. The face is rounded and swollen, the eyelids are puffy, the cheeks and lips distended; the bridge of the nose is frequently sunken and the nose itself broad and flat. Often the tongue is enlarged and protruding. As a rule, the teeth are much decayed. The ears are apt to be large and distorted. The skull is markedly brachycephalic because of a premature union of the basioccipital and basisphenoid; similarly, the shafts of the long bones fail to grow because of a tendency of the diaphyses and the epiphyses to unite; consequently the bones of the limbs tend to increase in width. The hands and feet are much flattened. There are diffuse swellings above the clavicles; the abdomen is full and often pendulous. There is a more or less marked lordosis of the lumbar spine; the limbs are crooked; the movements slow and the gait awkward. The muscles are soft and the patient has little strength.

Should the child survive until puberty is reached, the latter is either never or only imperfectly established. Because of the mental condition, it is difficult to judge of the special senses. However, taste, smell, and hearing appear to be much below normal; this is also the case, though to a less extent, with the perception of cutaneous impressions; vision seems to suffer least of all.

The skin is dry and wrinkled, the hair coarse and thick. As a rule, no hair is found upon the body; if so, it is very scanty. Usually no thyroid gland can be felt; on the other hand, now and then an enlargement is noted. The temperature is, as a rule, slightly subnormal; while the pulse and respiration are distinctly slow.

The mental condition is essentially one of marked deficiency. Many of the patients cannot learn to talk, are incapable of training, cannot stand or walk unassisted, and are filthy in their habits. Many of those who learn to talk usually sit about unoccupied without interest and without emotion. Only a few are capable of any employment. Their mental processes are very slow; they are stupid, often sleep a great deal, and, while usually quiet, may, if annoyed, give way to outbursts of anger.

Different patients, of course, present the above symptoms in varying degrees, but, as a rule, the latter are so marked as to leave no doubt as to the diagnosis.

AMAUROTIC FAMILY IDIOTY

Amaurotic family idiocy is a remarkable affection, for a knowledge of which we are indebted to B. Sachs. It occurs almost exclusively, it would seem, in children of Polish-Jewish parentage, and commonly in a number of children in the same family. The patient presents nothing unusual at birth, but in the first year, more frequently between the fourth to the tenth month, begins to reveal striking changes. It becomes weak and relaxed, cries a great deal, is indifferent, ceases to look about, and no longer grasps at objects. It does not see as before. Its weakness becomes progressively worse. Soon it is no longer able to sit up, to hold up its head, and later to swallow properly. Not infrequently wasting and contractures make their appear-

ance in the muscles. The tendon reflexes are commonly increased; less frequently, they are normal or absent. Sometimes a Babinski reflex is noted and at others a persistent extension of the great toe.

An examination of the eye-grounds reveals optic atrophy together with remarkable appearances in the region of the macula lutea, namely, a red spot surrounded by a dull white area. Nystagmus, rolling and restlessness of the eyeball, may be present; also automatic irregular or rhythmic movements of the tongue and lips; drooling. Hearing likewise becomes impaired and probably the other special senses also. There is a rapid and increasing mental loss, which is after a time complete. Marasmus and finally death, in the second or, at most, third year of life, complete the picture. The microscopical findings reveal extensive atrophic degeneration of cells and fibers, not only in the cortex but in the brain and cord generally.

Spieimeyer and Vogt have described a somewhat similar degenerative affection occurring in children at from six to ten years. The children deteriorate mentally, lose interest, become indifferent, lose their memory, become filthy, lose their speech, save perhaps a few articulate expressions. Blindness also sets in, which finally becomes complete. The ophthalmoscope reveals optic atrophy. Paralyses, spasticity, and epileptic seizures may be added. The affection lasts for several years. Tuberculosis appears to terminate the picture. The microscopic findings, as in the infant form, consist of similar degenerative changes, though much less profound. Vogt speaks of this form as a juvenile form of amaurotic family idiocy. However, while like the infant form it is a familial disease, it is not especially confined to the Jewish race.

Among the factors which play a part in the etiology of feeble-

mindedness in general, and, it would appear, especially in the etiology of the morphologic cases, *i. e.*, those with simple developmental arrest, we have various diseases and pathologic states in the ancestry. Among these should be mentioned tuberculosis, syphilis, alcoholism, insanity, epilepsy, and other nervous affections. Exhausting diseases affecting the mother at the time of pregnancy have an especially baneful influence. Consanguinity in neuropathic stocks is also a serious menace to the offspring; although it should be added that in healthy stocks consanguinity in the human species seems to be no more injurious than in animals. Premature birth is another factor occasionally noted; cortical agenesis or arrest is not uncommon. Among the congenital hemiplegias and diplegias, we have the dystocia and cognate factors already considered. Among those occurring subsequent to birth we have, as already stated, the various infectious diseases and traumata.

The duration of life of feeble-minded children, as a group, is fortunately not great. They have, on the whole, a greatly lessened resistance to infection, and by far the larger number die in the second decade. Barr's statistics show that a few survive to the third decade, a very small number to the fourth, and almost none survive to a later period. Among the common causes of death are tuberculosis, pneumonia, and other infectious diseases, diseases of the heart, of the digestive tract, and of the kidneys, as well as various affections of the nervous system, such as embolism, thrombosis, and hemorrhage of the cerebral vessels, and meningitis.

The treatment of feeble-minded children is, of necessity, one of simple hygienic management. Little can be expected in any case from the internal administration of remedies, save

in the single instance of cretinism. Here desiccated thyroid is often of great value. If the treatment be instituted early, the child begins to grow, the myxedematous infiltration disappears, the torpor vanishes, and the child becomes alert and intellectually active. When the treatment is begun, the child should be put to bed; the initial doses of the thyroid should be quite small, say one-fourth of a grain three times daily. Gradually the amount should be increased until a full dose is reached, but this should be done with care and judgment. The change which ensues in early cases is often remarkable; in patients in whom the affection has existed for a number of years the improvement is less decided; especially is this the case if the treatment has been delayed until puberty or adolescence is reached. Care should be exercised, especially in long-standing cases, not to use the thyroid too freely.

In cases of feeble-mindedness, in which inherited syphilis is clearly the etiologic factor, the iodids and mercurials unfortunately yield results of little or no consequence. In other cases, again, in which the bones of the skull seem to have united prematurely, surgical procedures—such as craniectomy—intended to give the brain a greater opportunity of growth and expansion, likewise fail of result.

The method of treatment usually resorted to in feeble-minded children generally is that of special training and instruction. In many cases it is of advantage to precede the institution of a special plan of education by submitting the child to a series of mental tests. Of the various tests that have been devised those of Binet and Simon appear to be the most useful. "Their object is to provide a quick means for the psychologic diagnosis of the grade of intelligence of a backward or abnormal child by means of thirty tests of a simple but precise character, sufficiently varied in type to explore

all the important phases of intellectual capacity (with special reference to judgment—good sense, initiative, adaptability), and of such a kind as to permit an intelligent investigator to form an independent estimate of the child's mental equipment. The tests are designed to measure native ability rather than erudition or scholastic attainment. They are to be administered individually, with suitable precautions, to insure the goodwill and active co-operation of the child, and to avoid restraint or timidity." (Whipple¹) They require much time and patience, and should be applied by persons who have familiarized themselves with the method by practice. It is also important to bear in mind that the defective child is very readily fatigued, and that recovery from fatigue is less rapid than in the normal child.

Very commonly general principles are followed in the training, such as teaching the child, if filthy, to become cleanly; *i. e.*, to give the evacuation of the bladder and bowels a definite and finally normal attention; to teach the child to stand, to walk, and to perform other movements properly. Drills and exercises improve the coördination. By appropriate methods speech is encouraged and improved, the eyes are trained to see, the ears to hear, the hands to feel. Such work naturally falls to the lot of the trained educator. Sometimes, in individual cases, much is accomplished; on the whole, however, the results are meager. Finally, the frequent death of the patients in the second decade of life sets a sad limit to our best efforts.

The arrest of the idiot mind is usually general in character; *i. e.*, the various faculties of the mind reveal a proportionate lack of development. However, quite frequently the mental state is one of very irregular and unequal development. Thus, every now and then the idiot child is unusually pre-

¹ Whipple, "Manual of Mental and Physical Tests," 1910.

cocious in certain directions or reveals unusual aptitudes and powers. Among the latter are the so-called learned idiots, "idiots savants." Thus, they may reveal an abnormal memory; they may be able to repeat long citations of the meaning of which, however, they have no comprehension; or, it may be, they will acquire phrases and often long quotations in foreign languages, of the meaning of which they are likewise ignorant. Sometimes a remarkable memory for dates is revealed or the idiot is a lightning calculator, or perhaps he has a remarkable aptitude for music. There is, however, neither originality nor invention, merely automatic reproduction; finally, if the idiot survives until adult life is reached, his unusual powers become less pronounced or even disappear. This is true also of the feeble-minded child in whom the faculties have suffered a general arrest; in a sense, the approach toward the end of the second decade is for the idiot usually a period of degeneration.

ADOLESCENCE

We have already fully considered the principal mental disturbances of the adolescent period; namely, the various forms of dementia *præcox*. At this period of life we may also, of course, meet with the delirium, confusion and stupor associated with the infections. Pure manic-depressive states, on the other hand, are rare. The neurasthenic-neuropathic group—the psychasthenias—however, are, as we have seen, not infrequent.

EARLY ADULT AGE

The third decade of life is pre-eminently the period for the first appearance of mania and melancholia. Dementia *præcox* is also met with at this time; quite frequently, as we have seen, the third decade is the period of fatal termination. Delirium, confusion and stupor from infection and toxicity are, of course,

also met with. Paranoia may have its inception at this age, and this is also true, though less frequently, of paresis. The neurasthenic-neuropathic disorders are also met with with considerable frequency.

MATURE ADULT AGE

Mature adult age—twenty-five to forty-five—is a period in which are met recurrent attacks of mania and melancholia and also paranoia and paresis; as well, of course, as the disorders dependent upon the infections, intoxications, and cognate causes. The neurasthenic-neuropathic disorders are somewhat less frequent than in early life.

MIDDLE AGE

The form of mental disease met with most frequently at the middle period of life is the melancholia of middle age, the so-called melancholia of involution. That this is but a part of the general syndrome of ordinary manic-depressive insanity is, as we have pointed out, extremely probable. It should be remembered that the prognosis of middle age melancholia is less favorable, both as regards duration and as regards recovery, than that of the melancholia of early life. Again, mania, though infrequent, is not unknown at this period. Hypomania occurs somewhat more frequently than mania, and at times is accompanied, especially in women, by a marked sexual re-crudescence. Active eroticism may manifest itself in various ways; *e. g.*, by open advances, letters, intrigues, scandals, love affairs, or marriage with men very much younger than the patient, by elopements and, at times, by open breaches of conduct. (See p. 103.) The other mental disorders present in the earlier periods of adult life, paranoia and paresis, are also met with here. Paranoid mental states in which delusions of persecution dominate the clinical picture are by no means uncommon.

(See p. 167; also Part III, Chapter I.) The neurasthenic-neuropathic disorders are infrequent. Disturbances due to the infections and intoxications are less common; those due to visceral disease perhaps a little more frequent than in earlier life.

OLD AGE

Old age is essentially a period of involution of nutrition, of diminished power for the sustained expenditure of energy, and, commonly, of a lessening in the general range of activities. The organism begins to reveal gradual and increasing changes in its structure, all of them expressive of senescence. Noticeably is this the case with the heart and blood-vessels. The heart no longer has the power to drive the blood with its former energy, while the vessels present walls no longer soft and yielding, but now rigid and with a narrowed lumen. That the brain must inevitably betray the evidences of a lessened nutrition is very evident. The changes of function that ensue are, however, in the vast majority of mankind entirely normal and in no sense pathologic. There is a quantitative reduction, but this is limited in degree, so that the individual continues to discharge his functions normally to the end of life. It is only when this reduction is excessive, and especially when it is associated with qualitative changes, that it becomes pathologic.

Senile Dementia.—When simple and excessive reduction without qualitative changes makes its appearance, there are present the phenomena of a simple senile dementia; they constitute those of a simple primary dementia. (They have already been considered in Part I, Chapter VII.) We will not here rehearse them; suffice it to say, that memory, judgment, the ability to do work, to take in new ideas, and to properly coördinate them are gradually lost. The impairment of memory at first reveals itself by mere forgetfulness, later by

failure to remember recent events. Gradually the defects grow deeper; the period of middle life is invaded, and, finally, even the memories of early life and youth are lost. The other mental faculties share in the general deterioration until finally a more or less marked dementia is established. The patient is childish, is usually unable to attend to his own wants and needs personal care.

Senile Confusion.—Senile dementia does not always present itself in the simple and uncomplicated form; indeed, in perhaps the larger number of cases, other symptoms indicative of qualitative mental changes are added. Thus, to the phenomena of diminished nutrition there may be added those of toxicity and exhaustion, and in such cases the picture of senile mental loss is complicated by that of confusion. There may be present hallucinations and unsystematized delusions; usually both hallucinations and delusions are painful in character. Occasionally the patient refers his hallucinations to the persons about him, begins to think that his neighbors, friends or relatives are inimical to him, are trying in some way to harm or injure him or, perhaps, to kill him. In other words, he may acquire a distinctly paranoid or persecutory attitude. His delusions are, however, vaguely systematized, if at all. Naturally, also, the confusion varies greatly in degree; frequently it is mild and passive; at other times it is active, and may, indeed, give way now and then to episodes of delirium. During such episodes the patient may be much disturbed and excited, and such a case is sometimes—incorrectly, of course—spoken of as *senile mania*. Again, a patient in whom confusion, passive or active, has been noted, may at another time be relatively clear, presenting then only the underlying symptoms of the quantitative loss, the

dementia. Doubtless the confusion has its origin in defective metabolism and defective elimination.

Senile "Paranoia."—Every now and then patients with beginning senile dementia become morbidly sensitive and suspicious. Under these circumstances the care and ministrations of relatives and friends may be greatly misinterpreted. The patient may, on the one hand, acquire the notion that the son or daughter who is so devoted is merely scheming to get his (the patient's) money, or, on the other hand, a trifling lapse in an otherwise assiduous devotion may give rise to ideas of gross indifference and neglect. With time such ideas may acquire all the force of fixed delusions, and it is not surprising that under these circumstances a will is sometimes made in which gross injustice is done to the child or other relative who is the most deserving. Sometimes the son or the daughter who has made the greatest sacrifices—who has given up career, success, marriage—is the very one who suffers most from the caprice and injustice of the testator. Quite commonly the suspicions and delusions of the latter are concealed during his lifetime. Occasionally, however, he communicates them in secrecy to a visitor or to a child or other relative whom he sees only infrequently. Sometimes hallucinations of taste and smell are present and the patient believes that he is being poisoned. Refusal of food or the manner of accepting it may reveal the delusion, or the latter becoming insistent the patient may openly accuse those about him. Very frequently, though it is noted that he is peculiar, suspicious, untidy, and even filthy, and that he is forgetful, unreasonable, irritable, and childish, his actual intentions—intentions based upon delusive beliefs—may not become known until after his death.

That such a patient not infrequently becomes a prey to de-

signing persons is also true. Sometimes it is a child or other relative who ensconces himself behind the suspicions, prejudices, and delusions of the patient, and influences the latter in the making of a will to his or her advantage and to the disadvantage of others who may have as great or even greater claim upon the testator's bounty. Not infrequently it is a servant, attendant, or nurse who thus intrenches himself. Sometimes a clever and designing woman, taking advantage of the intimacy existing between nurse and patient, so plays upon the mental weakness of the latter as to bring about the making of a will in which she is a beneficiary, perhaps the chief beneficiary. Not infrequently the intrigue succeeds the more readily when, as is frequently the case in aged men, the patient is also a sufferer from prostatic disease. Under these circumstances there is sometimes a remarkable recrudescence of sexual thoughts and feelings. Sexual recrudescence in old age is of course always pathologic, but under its influence an old man may fall in love, and may fall hopelessly and helplessly under the influence of the woman who is the object of his affection, whom he may marry, and to whom he may bequeath the bulk of his estate, leaving little or nothing, it may be, to his children.

During the time that the patient is in this condition, delusions may manifest themselves. Among these are expansive delusions as to the physical health and vigor of the patient, and also persecutory delusions as to ill-treatment and abuse by children or other relatives who very naturally oppose his marrying. That under such circumstances serious trouble and unhappiness occurs in families, that improper and unjust wills are made, and that subsequent contests arise in the courts is a not unfamiliar story. At times the above picture is complicated by confusion; the bladder frequently becomes infected from repeated catheterization, or there may be involve-

ment of the kidneys, and the patient becomes, in his already weakened state, also toxic and hallucinatory.

The fact that the patient, after erotic, persecutory, or expansive delusions have made their appearance, continues for a long time to perform acts that he has been in the habit of performing many times and for many years, is sometimes cited as proof of his sanity. As a matter of fact, an aged man may, under these circumstances, continue to sign and endorse checks, may subscribe his name to other papers, give accustomed directions, play cards, checkers, or other games, and thus present a superficial appearance of mental integrity. At the same time, just such a patient may be unaware that he has broken wind, has urinated on the floor, or defecated into his clothes.

Occasionally cases of senile dementia with prostatic disease manifest eroticism and sexual recrudescence in other ways than by love affairs, proposals, and marriage. Sometimes a man previously respectable and of irreproachable character begins to consort with lewd women, to practise exhibitionism, to toy with children, or even to attempt rape. Usually the mental examination reveals senile stigmata more or less pronounced.

Alzheimer's Disease.—Kraepelin has given this name to a special group of cases described by Alzheimer. The affection is characterized by a slowly developing but very marked mental deterioration and which is accompanied by symptoms suggesting an organic brain disease. The dementia is progressive over several years. Loss of memory, poverty of thought, lack of clearness are increasingly evident. The patient becomes confused, cannot make himself understood, gives away his belongings. He is restless, becomes garrulous, mumbles to himself; may sing, laugh, exhibit automatic movements; becomes incontinent. He understands no directions, interprets no gestures.

recognizes no objects and is unable to carry out any orderly procedure. His speech is greatly disturbed. He may begin with a few phrases or sentences coherently, but soon halts, repeats words and syllables, and usually ends in a meaningless gabble. Finally, he becomes quite mute, at most uttering occasional words or senseless syllables under excitement. He becomes unable to feed himself or to take care of himself in any way. He places in his mouth whatever is put in his hands. His dementia is profound.

Among the physical signs are marked general weakness, spasticity of muscles, especially in the legs, a shuffling, uncertain gait. Focal brain symptoms are not present unless it be the aphasic and apractic disturbances. The pupillary reactions appear to be diminished. Several of Kraepelin's patients suffered from isolated epileptiform seizures. At times arteriosclerosis is present. After a number of years the patients finally succumb to intercurrent disease.

The autopsy reveals changes in keeping with those of a grave senile dementia. However, the necrotic foci seen in ordinary senile dementia are here very numerous, while extensive destruction of the cortical cells is everywhere noted. The places of the latter are taken by bundles of fibrillæ. The latter stain deeply and are probably the remains of former cell bodies. The glia shows extensive proliferation, especially around the necrotic foci. The latter are filled, as in senile dementia, with a colorless material probably the result of nerve substance destruction.

The clinical picture suggests that in Alzheimer's disease we have to deal with an especially severe form of senile dementia. The fact that it may begin relatively early, for instance, before fifty years of age, points to a precocious senile dementia; but possibly a special pathological process independent of age is at work.

Senile Melancholia and Senile Mania.—In old age phases of melancholia may make their appearance, just as they do at other periods of life. The depression is, as a rule, marked and extremely persistent; it differs but little in its symptomatology from that of the melancholia of middle life. There is the same hopelessness, the same self-accusatory attitude of mind, the same admixture of hypochondriacal ideas. Like the melancholia of middle life again, it is very prolonged, may become chronic or may terminate in dementia. However, now and then a senile melancholia makes a good recovery. The differential diagnosis from senile dementia becomes therefore important. This is to be based, first, upon a careful and detailed review of the patient's life, in order to determine the presence or absence of manic-depressive elements; a history of a previous attack of depression or perhaps of expansion is of the utmost importance. Secondly, in the examination of the patient, unmistakable signs of actual mental loss should be carefully sought for. Their presence in a degree strongly favors the diagnosis of senile dementia. Because of the indifference of the patient and his not infrequent unwillingness to talk, much time and patience are required.

Senile mania is quite rare. In its symptomatology, it does not differ from that presented by the manic phase at other periods of life. It is, however, much more prolonged and, like senile melancholia, does not offer the same prospect of recovery.

CHAPTER III

MENTAL DISEASES NOT ORDINARILY INCLUDED UNDER INSANITY

THERE remains to be considered a residue of mental cases which, though not classified among the insane, are notwithstanding clearly and definitely abnormal. Every community contains a number of individuals who make up its proportion of defectives and deviates. Among these are to be found some of the unsuccessful, the misfits of society, as well as the immoral, the vicious, and the criminal. They separate themselves into two groups, which, though quite distinct, may merge into one another.

BORDERLAND MANIC AND PARANOID STATES

(The Mattoids)

Among the first we may find cases clearly related to the manic-depressive group, and which are indeed frequently instances of exceedingly prolonged hypomanic states, interrupted, it may be, by relatively normal periods or by periods of depression. At other times the mental attitude is distinctly paranoid. The individual often presents an appearance of brilliancy and originality, but with this he betrays, as a rule, great defects of judgment and of will-power. His mental vision is rarely clear; he fails to see things in their proper proportion or in their real relations to each other. Especially does he fail to appreciate closely or adequately his own relation to the external world, to the circumstances in which he is placed, and to the conditions with which he must cope. The various undertakings in which

he engages are badly planned and doomed to failure. He rarely remains long enough in any one occupation to acquire a thorough knowledge of it. He changes from one trade, one employment, one calling to another. He lacks the persistence, the strength of will, to complete or carry to its logical conclusion a given undertaking. Slight obstacles discourage him and often lead to a radical change of plan. At the same time, he usually talks a great deal, is often addicted to monologue, and betrays, by his conversation and attitude, that he has an expanded personality. He manifests little or no feeling for others, no sympathy or consideration. He is self-absorbed, vain, egotistic, and self-assertive. Often he impresses his relatives and friends as though he were unusually bright, original, and capable. Sometimes he is looked upon as a kind of genius. Time, however, passes and no results are achieved, the money of friends and relatives is lost in this or that enterprise. Failure is the continual outcome. As the years go by, a misanthropic attitude of mind—a paranoid view of life, the idea that the world is against him, that he has been much abused—makes its appearance. Alcoholism often complicates the picture. Indifference to obligations, neglect of family and friends, rank dishonesty are usual accompaniments. To lie, to swindle, to obtain money by devious paths are common expedients.

Few of those who come into casual contact with such an individual realize his true condition. The latter is only disclosed by a painstaking study of his history. As a rule, the intimate facts can only be elicited from those who have had the misfortune to live with him. Quite commonly even his family scout the idea of his not being mentally well; perhaps it is a single one, a long suffering mother or father, who takes the opposite view. That he is held strictly accountable to the law is of course well known.

That hereditary neuropathic factors are present in such cases need hardly be added. The mental examination reveals nothing that is clinically significant. The intelligence is average, sometimes decidedly above the usual level; there are no well-defined delusions, no hallucinations. Manic or paranoid factors, however, are revealed either in the history, as already pointed out, or in the course of the examination.

STATES OF HIGH-GRADE DEFICIENCY; MORAL DEFICIENCY; CRIMINALITY

(The Morons)

In considering arrested development in children, it was pointed out that the arrest might be general in character, involving all of the mental faculties, or that the arrest might be quite unequal and irregular. If the arrest of development be relatively slight, and at the same time general, an individual results who is less capable, less fitted for the struggle of existence than his fellows, but who does not differ from them materially in his conduct or in his relations to society. If there be a lessened intelligence but a preservation of the feelings, of the normal emotional reactions, the individual may be an inefficient but a well-behaved member of the community. Unfortunately, however, the condition most frequently met with is one in which the intelligence is fairly well preserved—at least reveals no deterioration to ordinary examination—but in which there are marked disorders of feeling, of will, and of character. There is an absence of the feeling for others which normally expresses itself in sympathy and altruism; there is an absence of the conception of suffering or pain in others and an inability to take in moral or ethical ideas generally.

As children, such individuals are egotistic, self-willed, stubborn and callous. They are undemonstrative toward their

parents, and indeed evince a dislike of being caressed. To have their own way, to disobey, is almost instinctive. They are indifferent alike to scolding or to praise. The sorrow which their parents may have because of their conduct makes no impression upon them. They lie, resist control, and, when the attempt is made to coerce them, sometimes do the exact opposite of what they are bidden to do. They are easily angered, have violent tempers, are jealous, vindictive, and cruel. Quite often they evince a fondness for torturing animals and for maltreating their smaller playmates. At school they are lazy, make no progress, resent discipline, commit mischief, disorganize the order of the classroom. Soon they become incorrigibles; sometimes a gross infraction of the peace leads to the reformatory, correction, or other institution; at other times, they run away from home and live by begging and theft; they may travel alone or may associate themselves with tramps and criminals. Often they return home after a longer or shorter period of vagabondage, make no explanation, or tell impossible stories, invent self-evident lies, take their punishment without a murmur, and, after an interval, may repeat the escapade. Frequently the absences grow longer, and sometimes the child or youth disappears definitely.

In children of this kind, the sexual instinct is, as a rule, precociously developed. They masturbate, practice perversions, mislead other boys, commit assaults on little children. Sometimes these traits appear before puberty; if so they become accentuated at this period.

In some cases the tendency to wander does not make itself evident until adult life is reached. Then restlessness, an unstable mood, an impulse for change, drives the individual from place to place; he roams through the country or goes by train from city to city, from one distant place to another. Being

without funds, he resorts to all sorts of expedients to raise money. Occasionally he seeks employment, but being poorly prepared, impractical, and essentially dishonest, he meets with failure. More frequently he resorts to forged checks, drafts upon his relations, exploits his friends, obtains goods under false pretense, which he immediately sells, usually at the first available price. Every possible resource is exhausted. At times he embarks on a career of crime, finds associates in the slums and by-ways, and may end by becoming a professional criminal; indeed, as is well-known, he may devote himself to certain lines of work for which he has especial aptitude, may become bunco-steerer, pickpocket, sneak-thief, burglar; he may even acquire a special pride in his skill and achievements. That murder may be included in the list of his crimes is well known. Sooner or later, of course, he is entangled in the meshes of the law.

Sometimes, in one of his early escapades, he marries, later perhaps commits bigamy, or he consorts with prostitutes. Quite commonly he gives himself up to gambling, alcoholism, and debauch.

Girls happily are less frequently the victims of this disorder. However, when they are afflicted, they present the same history of lying, disobedience, and incorrigibility in childhood, manifest the same sexual precocity, and may early fall into prostitution. At other times, the young woman as she grows up betrays inordinate vanity and love of finery. She, too, indulges in escapades, but usually in the company of young men. She has risqué adventures, creates talk, gossip, scandal. Perhaps her affairs culminate in a runaway marriage. If married, she avoids pregnancy, commits abortion, or, if she has children, neglects, abuses, ill-treats them. She has an utter disregard of the husband's means or interests and makes life impossible

by her extravagances. Quite commonly her desire for admiration leads her to encourage the society of other men. Breaches of the moral law are frequent; divorce, degradation, the natural result. As a consequence of the abuse of alcohol, the infection of syphilis and general unphysiologic living, both men and women of this class may acquire some form of insanity necessitating asylum commitment; indeed, this is a not infrequent outcome.

The sufferers from this form of deficiency do not, of course, recognize their own condition, nor, indeed, is the true state of affairs appreciated by the family; at least not early in the case. The patient's intelligence seems to the lay observer to be ordinary; it does not attract special attention. However, examination usually shows it to be unequally and irregularly developed. Every lazy and incorrigible child should be subjected to a thorough psychologic examination; *e.g.*, by the Binet-Simon System. (See Whipple, *loc. cit.*) The intelligence may be found below normal, fair, good, or even unusual. It is safe to say, however, that in a large number, say about one-third, it will be found subnormal. However, whatever the facts elicited by such an examination are, one fact remains, namely, that the general intelligence is preserved out of proportion to the moral sense. The child cannot and does not feel morally. Ideas of sin, wrong, and crime are not associated with feelings of pain, nor are ideas of duty, right, obedience associated with feelings of pleasure. The child has no sense, no feeling of right and wrong. It is in this respect an idiot, and the terms "moral idiocy," "moral insanity," long ago used by English writers, adequately designate its condition. The acts of the patient are determined exclusively by his appetites or by the temptations of the moment. He may be, and usually is, sufficiently intelligent to appreciate the consequences of his

acts, but this does not deter him from following his inclinations. Prison discipline sometimes, though infrequently, has a beneficial effect; unfortunately, as is well known, the prisoner often recurs, as soon as liberated, to his old mode of life, and a history of repeated commitments is quite common. Improvement seems to be possible in only a limited number. If the individual lives, advancing years may bring some amelioration; desires are less keen, temptations less alluring.

That a large number of criminals present physical stigmata of arrest was long ago pointed out by Lombroso, and, though one can hardly subscribe fully to his interpretation of their significance—as such signs are occasionally found in otherwise normal persons—enough is known concerning the criminal's mental make-up to justify the conclusion that he is subnormal and deviate in development. Equally well known is the fact that he is commonly the victim of a vicious heredity, a heredity in which crime, bastardy, insanity, syphilis, and alcoholism play significant rôles.

SEXUAL ABNORMALITIES

In the preceding section it was noted that high-grade defectives frequently present precocious development of the sexual instinct, which, in addition to masturbation, may manifest itself in various forms of sexual perversion. It is not surprising to find defectives in whom the sexual factors constitute the principal clinical features. There is, first, in the great majority of cases, a pronounced neuropathic heredity; second, there is, in the larger number, a more or less marked mental deficiency which sometimes amounts to feeble-mindedness. At times the mental deficiency is not pronounced, but in such cases the characteristics noted in the neurasthenic-neuropathic constitution are observed. (See p. 182.) Third, the pa-

tient not infrequently bears upon his person the stigmata of an aberrant development.

Sexual abnormalities separate themselves roughly into two groups: first, those in which sexual evolution has been incomplete, and, second, those in which sexual evolution has been aberrant so that the impulse is inverted or perverted.

Every physician meets with male patients in whom there is more or less marked deficiency of sexual development, impulse, and power. Sometimes an examination reveals that the penis and testicles are unusually small, or that perhaps one or both testicles have failed to descend. The hair on the pubis and in the axilla is apt to be sparse; frequently, too, this is true of the hair upon the face. The skeleton, musculature, voice, and manner also suggest immaturity although the patient is of adult age. In pronounced cases the penis, scrotum, and testicles remain infantile, the face is beardless, the voice child-like, and the patient presents a diffuse deposit of fat, like that seen in pituitary deficiency. Doubtless, here testicular and pituitary deficiency go hand in hand.

Among the more distressing sexual defectives are men in whom the sexual organs are of normal appearance, and in whom the secondary sexual characteristics—beard, voice, frame, and musculature—likewise appear to be fairly developed, but in whom the sexual life is feeble and short. Sometimes the sexual impulse and power are both entirely lacking; more frequently the patient presents a history of fair sexual competence extending over a few years and then premature failure. Quite commonly such patients are sterile from the beginning, but this is of course not necessarily the case.

In women similar conditions are met with, and they vary from those in whom there is marked failure of sexual evolution to those in whom sexual evolution seems to approximate the

normal. In the former there may be a history of non-appearance or of late and imperfect appearance of menstruation. Quite frequently the uterus is infantile, the vagina cleft, and the external genitalia exceedingly small; pubic and axillary hair may be deficient; the breasts are small, the hips, shoulders, and torso generally like those of a child. On the other hand, the general physical appearance may reveal nothing abnormal and yet the patient may lack entirely sexual impulse; she may be frigid, unresponsive, or the sexual act may be painful and disgusting. Like the corresponding male patient, she may react for a while and then pass into a period of premature involution, a premature menopause. Like the male patient, again, she may show the evidences of an involvement of the internal secretions.

Both men and women of this group may display a well-marked tendency to affection for the opposite sex; frequently, however, this is ideal and platonic. Again, a rigid examination reveals that they are, as a rule, somewhat subnormal mentally; it cannot be claimed, however, that this is invariable.

The second group of cases, that in which sexual evolution has been aberrant, presents quite commonly morphologic peculiarities as well as abnormal sexual impulses. It is subdivided into two groups, first, those in which the impulse is inverted, second, those in which it is perverted. The first includes instances of homosexual love; *i. e.*, cases in which the sexual impulse is toward the same sex as the patient. Quite frequently it is found that the man who falls in love with another man presents certain physical peculiarities. Although it may be that the genitalia are normal, or apparently normal, the man presents many of the anatomic features of woman; thus, the pelvis and buttocks may be female in type, the breasts may be unusually developed, the face beardless, the voice feminine,

the gait mincing. As a rule, such persons play the passive part in the abnormal congress. If the person be a woman she is, as a rule, "mannish" in appearance; strides, stands, talks like a man, has narrow hips and pelvis, small breasts, and perhaps an unusual amount of hair on the face. Sometimes, indeed, examination reveals an enlarged and erectile clitoris. Occasionally, too, a condition of the genitalia is found—an imperfect differentiation—suggesting hermaphroditism. On the other hand, patients are met with, in both male and female homosexuals, in which the genital organs and the secondary sexual characteristics alike do not differ from the normal, and in whom, notwithstanding, the sexual impulse is inverted. Such persons may, however, marry and bear children, and yet have desperate love affairs with, and abandon their families for, some person of the same sex. In such cases the inversion of the instinct is usually purely nervous and psychic; however, at times, physical gratification may be indulged in. Again, there are individuals who fall in love at one time with a member of the opposite sex and at another with a member of the same sex.

Sexual perversion manifests itself in a variety of ways; *e. g.*, sexual congress between human beings and animals, "bestiality," or sexual congress by a man with a dead body, "necrophily." Sadism, so-named after the Count de Sade, is a form of perversion in which the male inflicts pain and suffering upon the female, often with great cruelty, in obtaining for himself sexual gratification. Sometimes the act is one of indescribable barbarity; the male killing his victim, mutilating the body, cutting off breasts and genitals, and perhaps ending with cannibalism.

At times the perversion manifests itself as masochism, so termed after an Austrian writer, Sacher-Masoch. The male insists on pain being inflicted upon himself. He begs the

woman to beat or maltreat him in various ways; this either induces an erection, and the act ends in intercourse, or it constitutes the entire sexual act, the man having an orgasm and emission just as the pain is most intense and apparently most difficult to bear. Such persons will occasionally arm the woman with a whip, which she applies to the nates, scrotum, or penis; at other times the individual will lie upon the floor and insist on being stamped and trodden upon. Sadism and masochism are innate perversions; in some cases previous sexual excesses and exhaustion seem to play a rôle.

Occasionally it is some part of the apparel of the female, a slipper, shoe, skirt, undergarment, the sight or handling of which leads to erection and ejaculation, or, it may be, to a paroxysm of masturbation. Sometimes it is a fragment of a skirt, a lock of hair, a curl or plat, which the patient snips off with a scissors; quite commonly, too, erections and orgasms occur the moment the desired object is secured—the moment that the scissors cuts through the dress or snips the curl. When this is the case, the fragment of dress or the curl is thrown away afterward; otherwise it is retained. Exceedingly disgusting forms of this affection, which is spoken of as fetichism, may be met with, as when the patient preserves or cherishes the urine and dejecta of the female or actually swallows them. Persons who suffer from fetichism not infrequently present the characteristics of the neurasthenic-neuropathic make-up, *i. e.*, of psychasthenia; and their perversion has its origin in the formation of pathologic associations. (See Part I, Chap. VI.) The inherent neuropathy of the individual is always the cardinal factor.

Sexual precocity, as we have seen, is a very common symptom in defectives. This precocity may early lead to various forms of perversion, pederasty, bestiality, and the like, or masturba-

tion and other excesses may result in sexual exhaustion, so that extraordinary stimuli are required to produce sexual gratification. This is probably, as already stated, the explanation, in part, of sadism and masochism.

Sometimes fetishism manifests itself in such a way that all the patient desires is a sight of the female genitals or limbs, when masturbation results, and there are cases in which the male, having actual access to the female, masturbates in her presence instead of having intercourse.

The prognosis of sexual perversion, when accompanied by marked morphologic peculiarities, is of course unfavorable. When it occurs in neurasthenic-neuropathic subjects, or when it manifests itself only as an occasional symptom, much may at times be accomplished by physiologic living accompanied by physical activity leading daily to normal fatigue. Suggestion and other forms of psychotherapy should of course be employed. Hypnotism is of doubtful value.

In simple sexual deficiency animal extracts, spermin, or lutein may be tried over a long period of time. Occasionally the chain of the glands of internal secretion may be stimulated by the prolonged administration of small doses of thyroid extract.

HYPochondria

Hypochondria, though far removed from the other topics treated in this chapter, notwithstanding, merits here both a place and adequate consideration. It, also, is a borderland mental state, classifiable, on the one hand, with the neuroses—neurasthenia, psychastenia, and hysteria—and, on the other, frankly with mental diseases. Hippocrates does not use the term "hypochondria." Galen, however, speaks of *morbus hypochondriacus*; later writers speak of hypochondriasis and associate the conditions with complaints of the stomach and

of digestion. It was not, however, until the latter part of the eighteenth century that it was more definitely recognized. In 1765 Robert Whyte, of Edinburgh, in his treatise on the nervous, hysterical, and hypochondriac disorders, clearly separated it from the other two affections. He says: "The complaints of the first of the above classes may be called simply nervous; those of the second, in compliance with custom, may be said to be hysterical, and those of the third, hypochondriac." We have here an instance of remarkable clarity of vision. In the middle of the nineteenth century French writers, beginning with Georget, recognized the mental character of the symptoms. German writers—Romberg, Griesinger, Schuele, Mendel, Jolly, and many others—followed. Von Hoesslin was one of the first to differentiate it clearly from the latter affection, and in this he was followed by Mueller, Bouveret, and others.

Hypochondria is frequently confounded, on the one hand, with neurasthenia and, on the other, with melancholia; for a long time, too, it was confounded with hysteria; many of the older writers regarded it as the expression of this disease in the male. Further, medical writers have been loath to grant to hypochondria a definite position in our nosology largely for the reason that hypochondriacal phases are observed in various mental affections such as the prodromal periods of melancholia, of paranoia, and in various demented states. However, an increasing clinical knowledge has shown that hypochondria occurs independently of these affections; further, that it occurs without the presence of a single symptom of neurasthenia or of a single stigma of hysteria. Its symptom group occurs alone and pursues its own course. It is the expression of a diseased personality, of an abnormal condition inherent in the individual. Its symptoms owe their origin to a change in the general sense

of bodily well-being, a change which gives rise to a more or less fixed conviction of illness.

It would appear that all of the various changes taking place in the body, all of the somatic processes concerned in the nutrition of the tissues and in the functions of the various organs, impress themselves to a greater or less degree upon the field of consciousness. The sum total of the impressions received gives rise to states of bodily feeling, and the latter directly affect the psychic state of the individual. Normally, the somatic changes do not impress themselves vividly upon the field of consciousness. They merely give rise to a generalized sense of feeling well. Further, it is the sensations evoked by the stimuli received from the external world through the various sense organs that normally dominate the field of consciousness, and in keeping with this the mental attitude of the individual is objective. In hypochondria, on the other hand, it is the somatic impressions which dominate the field of consciousness; and these impressions are of such a character as to produce a feeling of illness; that the mental attitude is subjective under these circumstances need hardly be added. It is important to point out further that actual physical disease or obvious disorders of function are not present. Owing to an inherent neuropathy in the individual, the somatic impressions evoke sensations that are pathological; commonly these are vague and generalized; at times, however, they are quite definite and approach visceral hallucinations in character.

The sense of illness, of not being well, varies greatly in degree in different cases. Sometimes it is comparatively mild, and in such instances may lead merely to an undue amount of complaining. At other times it is very pronounced, and then dominates the life and actions of the individual. The patient usually explains his condition by disease of the stomach, bowels, liver,

or other organs. His belief is not founded upon pain or other distressing sensations in the region complained of, but is merely a conclusion based upon his general feeling of illness. It need hardly be added that the most careful investigation fails to reveal any evidences of actual organic changes, and if functional disturbances are present, these are slight and inconsequential and cannot be invoked to explain the mental condition of the patient. When the hypochondria is marked or profound, it may suggest melancholia. There can, however, be no difficulty in making a correct diagnosis. Melancholia is a phase of manic-depressive insanity, it has a wave-like course, is characterized by more or less psychic pain together with ideas of self-accusation which are commonly expressed in terms of the delusion of the unpardonable sin. In other words, in melancholia the explanation of the psychic suffering concerns itself with sinfulness, moral unworthiness, spiritual ruin. In the melancholia of middle life—the so-called melancholia of involution—it is true that hypochondriacal ideas are frequently present, but in such case they form but a part, usually a very small part, of the larger picture of self-accusation and sinfulness. In hypochondria, on the other hand, the ideas of the patient relate solely to conditions of the body. It is the various feelings of the body and the various disorders which he believes to exist in the body, which occupy his mind.

As might be expected, hereditary factors are quite common in hypochondria. Not infrequently we receive a history of a similar affection in the father or other ancestor. Sometimes it is a history of insanity or other nervous affection. Quite commonly hereditary neuropathic factors are pronounced. Occasionally, too, a brother or other near relative suffers like the patient or has a history of nervousness or of mental disease.

While hypochondria is unquestionably hereditary and innate,

its development is favored by all forms of unphysiological living. Thus, it is more common among those who live narrow and restricted lives; for example, it is found among clerks, students, and professional people whose lives are inactive and repressed. On the other hand, it may be met with among persons who work out of doors and who earn their living by physical labor; for example, laborers and farm hands. Here the unfavorable influences are the monotony of life and the daily sameness of existence. Again, idleness, the want of occupation, the absence of special interests or objects in life are also predisposing causes. The effect of idleness is sometimes illustrated in a striking manner in the hypochondriasis of middle life. A man who has previously been active and who has accumulated means, suddenly abandons himself to a life of ease. The stimulus of work no longer entails an objective attitude of mind. Further, he no longer eats well or he eats too much, smokes more than formerly, allows himself an unaccustomed amount of alcohol, has no exercise, or perhaps plays golf to the point of overfatigue. Soon he is not well, slight disturbances of function, such as an atonic indigestion or constipation, furnish the groundwork of a nosophobia. Before long he becomes the victim of imaginary ills and may gradually develop a confirmed hypochondria. He begins consulting physicians, changes from one to the other, often goes from one city to another, seeking the advice of this or that prominent specialist, or he extends his quest by going abroad. Here he again consults physicians and ends by going from one well-known health resort to another. Previous to the war such patients made veritable pilgrimages to Carlsbad and to others of the numerous watering-places and cures of Germany and Austria.

Among other factors favoring the development of hypochondria are all causes which depress the general physiological

level, such as the abuse of alcohol and tobacco, insufficient or excessive food, physical indulgence, dissipation. Occasionally suggestion plays a rôle. Thus, it is seen now and then among medical students and others who are much in contact with disease. Sometimes the student becomes hypochondriacal to the extent of believing himself to be suffering from this or that disease which he has seen in the clinics.

It is clear, let us repeat, that in all cases of hypochondria there is a pre-existing neuropathy, a ready soil for the development of the affection. All other factors have merely an incidental value.

Premonitory symptoms of a later appearing hypochondria are not infrequently noted early in life. Thus, a child betrays unwonted alarm over some trifling illness, or it is excessively frightened or reacts inordinately to some insignificant hurt or bruise. In keeping with this is the fact that frequently such a child will not begin screaming until some moments have elapsed after an injury has been received; that is, not until it has had time to realize that it has been hurt. It is not the physical pain which causes the reaction, but the mental make-up of the child. The tendency to hypochondria is sometimes revealed as the child grows up, sometimes during youth, sometimes as youth merges into adult life. The individual is unusually afraid of illness, is physically timorous, inclined to nosophobia, to be concerned about his health. Later, in early adult life, or, it may be, in more mature years, the symptoms become more pronounced. Most commonly they are marked before forty; occasionally they do not reach their full development before middle life is reached.

It should be added that hypochondria is more common among men, although some of the most pronounced and troublesome cases that have come under the observation of the writer have

occurred in women. Finally, hypochondria, as is the case in so many other mental affections, is more frequent among those who are unmarried.

As the hypochondria becomes more pronounced, the anxiety of the patient about his health increases. He may be constantly afraid of catching cold, of acquiring disease of the chest or abdomen. Not infrequently, such patients come to the physician wearing an excessive amount of clothing, chest protectors, abdominal binders, or other unnecessary articles. On the other hand, his fear of disease of the stomach or bowels may lead him to adopt a special dietary, to which, however, he usually adheres for a limited time only. Thus, he may adopt an exclusively vegetable diet or, again, a diet containing an excessive amount of meat. More frequently it is a special class of foods which is affected or excluded. At one time, much ado is made over cereals, breakfast foods, or special kinds of bread; at another, the importance of this or that fruit at breakfast is insisted upon. Shortly after, these very articles may be tabooed. At times, tea, coffee, or alcoholic stimulants are rigidly excluded, only to be resumed later on. At other times, water is taken in certain ways or in fixed quantities at definite times. Very frequently, also, the patient affects the various table waters; first one and then another is lauded for its virtues.

If the case be progressive, or if the case be more pronounced and confirmed, the vague feelings of illness may give way to other sensations that are more definite, and which later on may become more or less fixed. The patient now describes various sensations, which he refers to the surface of the body or to the mucous membranes. Thus, he experiences burning sensations in the skin, in the conjunctiva, in the mucous membrane of the mouth. The hair upon the limbs or body is stiff, is breaking off, is falling out; the skin is tight, feels cold, or

is the seat of creeping sensations. More frequently it is the digestive tract to which the patient refers his sensations; he has burning sensations in the stomach; in the bowels, the abdomen feels swollen, or he has strange distressing or painful sensations in the genitals; men complain of pain in the testicles; women, of burning sensations in the vulva and vagina. Sometimes bizarre sensations are complained of, referred to this or that part of the body, the head, the trunk, the spine, which the patient is frequently quite unable adequately to describe. Thus he complains of pressure about the head; his head feels as though there were an iron weight pressing upon the top or iron bands about the temples or the back of the head. He complains of pains in his limbs; the limbs ache, they burn, or they are the seat of fine vibratory, trembling, or numb sensations. He complains frequently of backache and of pain beneath the shoulder-blades. He has distressing sensations which he refers to the liver or to his kidneys. He complains of palpitation of the heart, of pulsating sensations in the epigastrum or in the abdomen. One of my patients had one of his testicles removed because he declared it pained him beyond endurance. The treatment, however, was ineffectual, as the pain at once appeared in the remaining testicle. Wollenberg cites a case in which the patient, failing to induce his physicians to perform castration, himself removed one of his testicles with a razor.

An examination of the patient fails to reveal any physical signs of moment, though now and then he is delicate and neurotic in appearance. As often, however, his physical development is fine; he is large of limb and great of stature, and his appearance is in crass contradiction with the grave illness of which he complains. Not infrequently, too, the muscles are well developed and the muscular strength is fully up to normal. There is no

change in the reflexes, in the pupillary reactions, nor in any of the movements executed by the patient. There are, very infrequently, a coated tongue and some evidences of gastro-intestinal atony and catarrh, together with constipation; these symptoms may, however, be but slightly, if at all, marked. Not infrequently slight catarrh of the head and of the throat is noted, and when a knowledge of such a catarrh is possessed by the patient it becomes a fruitful source of hypochondriac ideas. The patient, for instance, may believe that he is developing consumption or other frightful and serious disease from which he will never recover. More frequently he finds, upon slight gastric catarrh and constipation, a belief of serious disease of the stomach or bowels. Beyond the indigestion and constipation no other visceral or somatic sign can, as a rule, be detected. Now and then a coldness of the hands and feet, or slight lividity of the surface or other evidence of feebleness of the peripheral circulation, is noticed. Most frequently an elaborate examination of the blood, urine, stomach contents, and feces reveals absolutely nothing. The mental examination also results negatively, as a rule, in so far as the general intelligence is concerned; exceptionally the latter is distinctly subnormal.

True to his fear of being ill, the hypochondriac patient constantly observes his functions. Atonic indigestion and constipation offer him abundant opportunity. He may note carefully the character of the bowel movements, observing the most minute details with regard to the form, size, color, etc., of the evacuations. Less frequently he observes the urine. Now and then, however, if it be phosphatic, it is in turn carefully studied and becomes a fruitful source of nosophobia, the patient not infrequently believing that he has spermatorrhea.

Very often hypochondriac patients keep careful records of their symptoms. It is a common experience to have them

enter the physician's office, seat themselves, and then draw forth little slips of paper on which they have noted a multiplicity of symptoms usually subjective, always trivial and unimportant, and generally incapable of verification. In manner and bearing the hypochondriac suggests a person gravely oppressed by illness. He frequently presents the history of having visited physician after physician in the vain attempt to obtain satisfaction as to his condition. The varying diagnoses that are formed from time to time are all carefully noted by him, and all serve to convince him that he is really a very sick man. Not infrequently he delves into medical books, increases his nosophobia, and subsequently displays a superficial knowledge of medical terms in speaking of his case. Later on he begins to make his own diagnoses, and then goes to this or that physician with his diagnosis fully prepared. Finding little satisfaction, or obtaining little relief from physicians, he not infrequently begins to treat himself, and he finds in the numerous quack and patent medicines so extensively advertised in this country a rich field for the gratification of his nosophobia. Bottle after bottle is consumed, first of this and then of that nostrum. Pills, powders, liniments, and salves follow in their turn, and the mantle and closets of his rooms are not infrequently laden with empty or half-empty bottles and boxes. One of the features of marked hypochondria is that the patient is always taking medicine of some kind or other; it may be a tonic, a laxative, or some drug. His diagnoses vary from week to week or often from day to day. To-day he has disease of the stomach, to-morrow disease of the liver; upon another occasion, it is disease of the kidneys, or of all of these organs combined. Slight palpitation of the heart convinces him that he has fatal heart disease; a pulsating sensation in the epigastrium convinces him that he has an aneurysm.

It is noticeable, as already stated, that such patients frequently present an appearance of health not at all in keeping with the symptoms of which they complain. Thus, a man who believes that he has serious disease of the stomach or liver not infrequently has an excellent appetite and eats with evident comfort and enjoyment. He may show excellent judgment in the selection of his dishes, and may even be an epicure in his tastes. He more frequently eats too much than too little; indeed, the quantity is not infrequently excessive.

Very often we find that the hypochondriac, among other things, has extreme views or extreme habits as regards physical exercise. He has read, perhaps, that physical exercise is necessary to health, and he now begins to devote himself to this method of treatment. One system of exercise after another is taken up, and, for a time, he may exercise excessively. Long walks may be taken or fatiguing runs on the bicycle. Most frequently he is devoted to room exercises, and he buys apparatus of various kinds, which, after a few weeks of desultory use, are allowed to become covered with dust. Extreme forms or odd forms of exercise, respiratory gymnastics, etc., are affected by him. At other times he takes grossly insufficient exercise, is fearful of the slightest exertion, may lie down for many hours of the day, or, believing himself to be ill, may actually go to bed.

Often he entertains absurd views in regard to ventilation, sleeping next to open windows, or, on the other hand, admitting an insufficient amount of air into his room. Equally absurd may be his habits as to bathing. Frequently he bathes excessively. Every form of douche, spray, shower, steam or hot-air bath is tried; or he bathes in cold, in hot water, daily insists upon his plunges, or, sad to relate, very frequently manifests an excessive fear of water and does not bathe at all. No

procedure is too absurd, too inconvenient, or too unpleasant for him to adopt. Any passing fad for the time being satisfies his longing for treatment. To-day it is some new form of exercise, but to-morrow it is bowel irrigation, and he now becomes a disciple of the high enema.

The onset of hypochondria is, as we have indicated, extremely gradual and its course essentially chronic. Occasionally its evolution is hurried by some intercurrent illness, such as attacks of acute indigestion or perhaps acute febrile affections. As a rule, it pursues a course extending over many years. It does not, however, usually pursue an even course. Its symptoms are at times more pronounced and at times less pronounced. Indeed, they may disappear altogether for a period, a true remission setting in, which persists for months or years. Later, the symptoms may recur and the patient may pass through another hypochondriacal period. In other cases, again, a permanent recovery may take place, no recurrence ever being manifested. In many cases also the hypochondria fades with increasing years and ultimately disappears; especially is this the case with the hypochondria that has its inception in youth and early adult life.

In cases in which hypochondria is progressive, the bodily nutrition little by little begins to suffer. The patient grows thin, gray, and sallow, and the skin and mucous membranes become dry. He no longer sweats readily. The bowel movements are dry. Constipation becomes more marked than ever, and often there are excessive discharges of mucus. His ideas are now exclusively concerned with himself. The condition of his liver and his bowels are the principle topic of his conversation. The taking of pills or the use of injections constitute the all-important business of his life. In such cases, it need hardly be added, the hope of definitely and permanently influ-

encing the patient's condition becomes progressively less and less.

Finally, a word remains to be said concerning the general mental make-up of the hypochondriac. This may be distinctly subnormal, though not necessarily so. Indeed, the patient may be somewhat talented or may manifest ability in certain directions. It is characteristic of the hypochondriac, however, that he lacks the ability or energy to finish work that he has begun. Notwithstanding, such persons may in their early lives be quite successful; it is only with the increasing hypochondria that they become incapables. Again, neither intellectual development nor education have anything to do with hypochondria, for, as pointed out, the latter occurs alike among laborers and scholars. Finally, and this is clinically important, hypochondria is the least frequent of the neuroses, and it is probably for this reason that it often remains unrecognized or is mistaken for some other affection.

While hypochondria usually presents itself in the generalized form above described, it not infrequently assumes a special form; that is, the clinical picture is dominated by a special set of symptoms. The two special forms most familiar to the practitioner are respectively the gastro-intestinal and the sexual form. In the gastro-intestinal form the patient complains of various vague and distressing sensations referred to the abdomen or to the digestive tract, and, while there is usually present some atonic indigestion, perhaps also slight gastric catarrh and constipation, the statements of the patient as to his sufferings are out of all proportion to the symptoms. He observes himself most closely. A slightly coated tongue or a fancied or unusual feature of the bowel movements alarm him, while slight indigestion may be accompanied by great sinking sensations and sudden fright. These patients are the ones who adopt

extreme diets or curious rules as to eating, who exhaust the list of laxatives, and who find great satisfaction in the use of injections, kneading of the abdomen, special exercises, etc., and who, in their zeal for each newly discovered dietary, medicine, or procedure, advocate and extol the same among their friends and acquaintances.

The sexual form of hypochondria is one of the most common forms met with, so common, indeed, as not to merit a detailed description. Its victims frequently believe themselves to be impotent. Quite commonly they are young men who have never attempted the sexual act; not infrequently they are engaged to be married. As a rule, when marriage takes place, they prove to be entirely competent. Every now and then, however, this is not the case, the fear, nervousness, and especially the belief that impotence exists lead to failure. The sexual organs are, it is unnecessary to say, perfectly normal to physical examination. Such cases are correctly classified as cases of "psychic" impotence. Sexual hypochondria is more common in early youth, and not infrequently the belief in sexual deficiency or impotence is based upon a previous masturbation, even when the latter has been slight and insignificant. Quite commonly the occurrence of seminal emissions forms the nucleus around which the hypochondria centers. This is equally the case whether the emissions are excessive or whether they are merely normal in their frequency.

CHAPTER IV

INSANITY BY CONTAGION

IN considering mystic paranoia, we had occasion to refer to the fact that the patient sometimes imposes his delusions upon large numbers of other and apparently sound persons. (See p. 157.) In a similar way hysteria is contagious, and there are numerous instances afforded by history of epidemics of hysteria—of “demoniac possession”—occurring in Europe during and subsequent to the middle ages. Often mysticism and hysteria are commingled in these epidemics, which still occur in Russia in our own day. Every now and then physicians observe the contagiousness of hysteria in their patients. Sometimes epidemics appear in schools; a little girl is attacked by hysteria, and soon others—perhaps a large number—are similarly affected.

Contagion, however, presents itself in a more concrete form, and, though it is not common, it occurs with sufficient frequency to demand a brief consideration. The following instances are met with: first, cases in which a single delusive idea or notion is imposed by a patient on a person who is well; second, cases in which a series of delusions systematized in character are thus imposed; third, instances in which two or more persons become insane simultaneously; fourth, cases in which one insane person imposes his delusions upon another insane person; fifth, cases in which there is a transmission of states of depression and excitement; and, finally, cases in which a person—*e. g.*, a relative or a nurse—in close contact with an

insane patient becomes insane himself without, however, acquiring the mental symptoms of the patient.

A brief consideration of the subject reveals that it is more complex than at first sight appears. Two important factors are at work. First, there is always a predisposition on the part of the person who is the subject of the contagion. Such predisposition is usually assured by the fact that in by far the larger number of instances both the original patient and the one secondarily affected are members of the same family; indeed, frequently they are sisters. They are victims of the same heredity and commonly of the same environment. Second, it is necessary that the person who is the victim of the contagion should present a certain degree of vulnerability to suggestion. Such a vulnerability is part and parcel of the heredity; again the secondary patient is relatively weaker and less forceful than the original patient, and usually offers little if any resistance to the ideas imposed. When the two patients are not related, the secondary patient is always feeble and degenerate and lacking in individuality. It can be safely maintained that insanity cannot be imposed by contagion upon a sound mind. The historic instances of great hysterical and mystic epidemics do not, of course, apply here.

The character of the contagion varies greatly. We have first those milder instances, in which merely a delusive idea or attitude is transmitted to the second party, but in which the facts do not justify the diagnosis of a communicated insanity. For example, a workman in the early period of the depressive phase of a paranoia returns to his home in the evenings complaining of unfair treatment on the part of his employer, or of abuse on the part of his fellow-employées. He will probably have the sympathy and perhaps active support of his wife and children. It is only later, when the mental disease becomes

evident and pronounced, that the family ceases to share the patient's attitude. A far more serious instance is that in which a friend, frequently not a relative, acquires the notion that a patient is really not insane and has been improperly committed. For example, a woman hears that a friend has been sent to an asylum, visits the friend, becomes convinced that the friend is not insane, has been greatly abused, is the victim of ill-treatment and conspiracy, and has been wrongfully committed. The insanity of the patient may be so pronounced as to admit of no possible doubt. In such case the fact of insanity may be reluctantly admitted by the friend, but the belief in ill-treatment and abuse by relatives, doctors, and asylum attendants may be adhered to. That, under such circumstances, litigation, attempts at rescue, endless trouble and annoyance to both relatives and physicians may be caused, is well known. Such cases are not, of course, true instances of insanity by contagion; they are, however, instances in which at least the patient's attitude has been accepted by the friend.

Instances of true contagion are met with in cases in which a group of delusional ideas, systematized in character, are transmitted from a patient to a person previously well. In almost every instance the patients are relatives; most frequently they are sisters or a mother and daughter who have lived together in close intimacy. Usually the form of insanity presented by the primary patient is that of a simple delusional lunacy. Quite commonly the delusions are those of persecution by neighbors, by the authorities, by the landlord. Expansive ideas may also make their appearance, though they are infrequent. The second patient sooner or later accepts the delusions of the sister or mother, and there is a remarkable uniformity in the general conduct and attitude. The paranoia thus communicated

is commonly of the simple non-hallucinatory form; if hallucinations are present they are usually not transmitted to the second patient; their reality, however, seems to be accepted by the latter. As a rule, such cases result in commitment only when the conduct of the two persons has in some outspoken way attracted the attention of the neighbors or of the authorities. Often they live undisturbed and separated from the world for many years. For a long time they are known only for their peculiarities, aloofness, and isolation; it is usually when they begin making absurd complaints and charges against neighbors, shopkeepers, and others, or seek redress for their fancied wrongs from the police, that they come under observation. Our knowledge of the subject is largely owing to the French, who have applied to the condition the very expressive term of "folie communiquée." The cases are quite rare; the writer has had but two instances under his own observation; both occurred between mother and daughter; in one instance only had the patients been committed to an asylum.

Occasionally the insanity makes its appearance simultaneously, it may be in two sisters, or it may be two brothers; at least it is impossible to fix upon one or the other as the original patient. It is to this condition that the term "folie à deux" is especially applicable. Even here, however, close living together and isolation seem to be a necessary part of the etiology, so that contagion seems here also to play a rôle. In a remarkable instance, known to the writer, two brothers, twins, became convinced in early life that the world was wicked and insincere, that modern civilization was altogether wrong, and that men could not be good and honest unless they returned to a primitive form of life. They, therefore, abandoned a prosperous hardware business in which they had been engaged as young men, retired to a farm, where they led lives of great

eccentricity; they wore almost no clothing, working about the farm in a condition of almost complete nudity; they allowed the hair and beard to grow without hindrance, lived upon raw and boiled vegetables, and led lives of great seclusion; although when they met strangers they did not hesitate to expound their views. Both lived to a rather advanced age; one of them during a period of depression attempted suicide, and, though he failed, the attempt was not repeated. The affection from which they suffered was evidently a paranoia simplex (the non-hallucinatory form of paranoia) occurring and developing simultaneously in twins.

Instances in which one insane patient imposes his delusions upon another insane patient are occasionally observed in the asylums. The ideas thus communicated are always paranoid, and, as in other instances of folie communiquée, it is the more forceful lunatic who imposes his ideas upon his weaker neighbor. The phenomenon is of scientific rather than of practical interest. As a rule after the second patient has been separated from the first, the communicated delusions fade and disappear.

A case of melancholia sometimes communicates his depression to another person, usually a relative; frequently the patients are sisters; occasionally they are husband and wife. At times a common suicide is arranged and may even be carried out. States of excitement are also at times communicated; especially may this be the case if religious exaltation be present in the original patient. Conditions closely simulating mania may thus be communicated from one person to another. In an instance observed at the Insane Department of the Philadelphia Hospital some years ago a colored woman, suffering apparently from acute mania, infected her mother and her sister. Both of the secondary patients, the mother and the sister, rapidly improved upon isolation, the original case running a somewhat

longer course. That hysterical excitement may be thus communicated, we have already seen.

Instances in which persons who nurse or attend the insane become insane themselves are relatively rare. It is very infrequent to observe a mental breakdown in an asylum attendant; notwithstanding its occurrence, all observers will agree as to its rarity. Somewhat more frequently do we note such a breakdown if the person nursing the patient happens to be a mother or sister. Here, added to the actual strain of nursing, loss of sleep, and confinement, there is an added anxiety and emotional strain often most difficult to bear. Under such circumstances depression, exhaustion with painful confusion, may finally ensue in the relative. The danger is the greater because the sister, for example, is of the same heredity as the patient and shares with the latter an inherent predisposition to mental disease.

The prognosis of communicated insanity depends, of course, upon the nature and degree of the contamination. Further, the delusions never secure the same firm hold on the secondary patient as upon the primary; and, in the majority of cases, the secondary patient improves and finally recovers when isolation is instituted. However, now and then, when the secondary patient has lived for many years with the original patient, and especially if this period has covered the formative, the adolescent period of life, as in the case of a daughter living with a paranoid mother, the daughter may cling tenaciously to the delusions that she has acquired from the mother and, indeed, may never relinquish them.

PART III

CHAPTER I

THE PSYCHOLOGIC INTERPRETATION OF THE SYMPTOMS

THE psychology of insanity offers an interesting and inviting field of study. The object of the present volume, however, which is that of a purely clinical treatise, limits us to a consideration of the essential and more prominent features of the subject.

We have defined a delusion as a false belief concerning which the person holding it is incapable of accepting evidence. A systematized delusive belief is made up of a group of associated ideas. Such a group of ideas constitutes a complex. In the case of a systematized delusion, the complex is of course pathologic. It need not be stated that normal complexes—*i. e.*, normal beliefs—make up the psychic content in health. By a complex is meant a group of associated ideas relating to a given subject. Sometimes such a complex dominates the mind and determines both the point of view and the action of the individual; *e. g.*, a statesman entertains a group of associated ideas, a complex, which constitutes his political belief and upon which he bases his policy. A business man entertains a complex upon which he bases his business course or enterprise; a chemist, a complex upon which he plans his experiments and investigations. The persistence or strength of a complex is often dependent upon the degree of the associated feeling or emotion. Of this our every-day prejudices are striking

examples. The complexes which a young man in love entertains concerning the object of his affection constitute another. A pathologic complex differs from a normal complex in that it is inaccessible to other and conflicting ideas, no matter how insistently the latter may be presented; that is, the delusion constitutes a system by itself; between it and other groups of ideas there is a break, an absence of association. In the familiar instance of paranoia such a system dominates the field of consciousness and excludes all factors in conflict with itself; the patient believes in his royal birth, despite the common place facts of his origin, of his surroundings, and of his actual station in life.

Dissociation manifests itself in many other ways. Thus, in hysteria, as already pointed out (see p. 263), the psychic representation of a limb or of one-half of the body may be cut out of the field of consciousness, or the dissociation may be of such a character as to result in a cleavage of the personality; as in hysterical somnambulism and in the somnambulism of hypnosis. In such a state, the patient is dominated by a group of ideas which are entirely dissociated from those governing his actions in his normal condition. There is an actual separation of the personality into two parts. Cases of more or less persistent double personality (see p. 264) are every now and then observed and can only be explained by dissociation. At one time the field of consciousness is occupied by one system of complexes and at another time by another system, there being no association between the two.

Again, different groups of ideas may occupy the field of consciousness during successive stages of a given disease. Thus, in the paranoid affections, the patient, in the depressive phase, presents complexes dealing with conspiracy and persecution, and, in the expansive phase, complexes dealing with importance,

noble birth, exalted station. (See Part I, Chapter V.) There is here, however, no sharp separation, no sudden transition from one group of ideas to the other. Indeed, for a time they may co-exist; the expansive ideas crowd the depressive ideas from the field of consciousness gradually.

Among other states which offer interesting examples of dissociation is delirium. Here the delusions are (see p. 34 *et seq.*) unsystematized, unrelated, fragmentary, and, it may be, kaleidoscopic. Such a condition can only be explained on the basis of multiple, constantly changing, and transient dissociations. There seems to be in an active delirium a rapidly and constantly shifting fragmentation of the personality.

The presence of a hallucination implies of itself a dissociation. In such a case, a separated portion of the personality addresses itself to the main body of consciousness; *e. g.*, by words. The impression produced is that of a sensation of extraneous origin. Now and then a separated portion of the personality expresses itself in writing; that is, instead of the patient hearing words and sentences, his own hand may automatically write them. The general consciousness does not know what the hand is about to write and exercises no volition or direction over the hand; the effect upon the main personality is exactly that of a hallucination; *i. e.*, of something received from without. Such instances are of course rare, but they nevertheless occur.

In the case of an illusion, dissociation is incomplete, or rather association is imperfect and abnormal; the impression is not properly correlated, and, therefore, erroneously apperceived. In other words, it is misinterpreted. (See p. 22.)

The most interesting anomalies of association are presented by the neurasthenic-neuropathic disorders, the psychasthenias. Here, as was pointed out, the one distinguishing feature is the formation of pathologic associations. (See Part I, Chapter VI.)

In part, such associations may be referred to attacks of spontaneous generalized fear, or to other occurrences giving rise to a kindred painful emotional state; *i. e.*, dread, dislike, disgust, abhorrence. Among these are such occurrences as a reprimand at school, threatened punishment at home, an unpleasant experience in business, various acts of the patient, breaches of conduct, of the proprieties, peccadillos, sexual acts, sexual experiences and transgressions, in short, all kinds of occurrences, the recollection of which is unpleasant or painful or of which the patient is ashamed and which he tries to forget.

The mechanism by means of which the pathologic association is formed is probably as follows: Under normal circumstances—that is, in a normal individual—a complex may enter without let or hindrance into the field of consciousness. It only depends upon the trend of the psychic activity of the individual whether it enters or not at a given time into consciousness. If so, it is grouped with other complexes already there. If in harmony with the latter, it joins in and perhaps in some degree modifies the current of thought. If it be in disharmony, it may greatly modify the current of thought, or there may be for a time an actual conflict between divergent groups of ideas. The individual may under such circumstances pass through a period of worry and stress, but finally in the normal individual a decision is reached, a line of conduct determined upon, and the matter settled. For instance, a business man has the opportunity of achieving success by taking an unfair advantage of a partner who has, it may be, been his life-long friend. The idea occurs to his mind, but meets there in conflict with other ideas based upon loyalty and affection. The conflict may be quite severe; the opportunity may have much to justify it; the partner may be overconservative, unprogressive, and a hindrance; on the other hand, the course suggested by the idea

might bring the friend and his family to want; cause pain and suffering to innocent persons. In a normal individual the problem is thought out and definitely settled. In a weak or neurotic man the idea may be put aside, repressed, never wholly disposed of, only to recur later in some new and unrecognized form; it may be as a sense of pity for himself, of antipathy for his partner, or of some trick of habit or conduct about his office subconsciously based upon this antipathy.

If the complex concerns some action of the individual, the memory of which is unpleasant or painful, and which he is anxious to forget, the troublesome complex may be suppressed altogether, may not be permitted to enter the field of consciousness at all. Usually, however, the attempt at repression is only partially successful. The buried complex is still potential; it links itself to other perhaps subconscious complexes, and, finally, by an indirect pathway, reaches the field of consciousness, though it does so in a converted or distorted form. Perhaps it makes its appearance in a feeling of uneasiness, of anxiety, of an apparently unexplained fear or obsession, or, it may be, in some strange movement, a tic, defensive, protective, or apparently senseless. (See p. 190.) Such reactions, it must be clearly borne in mind, can only take place in individuals already the victims of a pre-existing neuropathy. Such phenomena are not observed in persons of a normal nervous make-up.

The repression of complexes leads to interesting phenomena other than those revealed in neurasthenic-neurotic and hysterical states; indeed, many of them are observed in normal individuals. Thus the constant repression of the sexual impulse may lead to an exaggeration of modesty—*i. e.*, to prudery; the repression of the maternal instinct may lead to the lavish expenditure of the affections on cats, dogs, and other pets. In pathologic states the reactions may be more complex. Thus, the

repression of the sexual instinct may lead a woman to attribute her repressed feelings to others; may make her feel that she is being desired and sought after. She may imagine that every man is in love with her, or she may center upon some one man who, she believes, is paying her attention. She may not have more than a passing acquaintance with the object of her thoughts; indeed, the latter is usually quite unmindful of her existence. She is herself sexually attracted to the man and represses or does not consciously admit this fact. On the contrary, she ascribes the feeling to the man, and interprets an every-day greeting, a passing remark, or other commonplace incident as proof that the man is pursuing her with his attentions. Gradually she evolves a series of systematized delusions, which sooner or later assume the character of annoyance and persecution. It is this condition which Clouston termed "old maids' insanity." Quite frequently the patient is in the early forties, or near or at the menopause. The explanation of such a "projection" of the sexual feelings is probably to be explained as follows: Long repressed, the sexual complex becomes so far separated from the general personality, that, as in the instance of a hallucination, it finally reacts upon the main body of consciousness like a separated portion of the personality, and is therefore attributed by the patient to some one person or persons without. The delusive ideas may not limit themselves merely to those of annoyance and persecution by the attentions of the supposed lover, but may become much farther developed. Thus the patient may believe that her minister or, it may be, her physician has assaulted or seduced her or been guilty of other misconduct, and she may cite the most trifling incidents in proof of her assertions. At times the repression of the sexual complex presents another picture. The patient begins to take an undue interest in rumors, gossip, stories of a sexual nature. Soon these

concern her neighbors, intimates, friends, various members of her social circle. Little by little she becomes the vehicle and disseminator of these tales, usually woven out of the whole cloth, and she may finally end by becoming a virulent scandal-monger. At other times, instead of evidencing her mental attitude by word of mouth, she may secretly attack the reputation of various persons by letters. The latter, which are almost always anonymous and usually grossly indecent and obscene, may be addressed to the victims themselves, or to numerous other persons. These cases constitute the so-called "poisoned pen" cases of the public press and of the courts. (See also p. 167.)

The tendency to project our own buried impulses and desires is seen quite frequently in normal life, as when a man criticizes in others the faults he himself possesses; when the fault happens to be associated with some unpleasant fact or memory of misconduct of his own, his condemnation becomes the more emphatic. It is not an accident that the man who betrays a financial trust is sometimes unusually prominent in religious affairs, an ardent Sunday-school teacher, or an austere pillar of the church. It is but a short step to ascribe insincerity, dishonesty, and wickedness to the rest of the world, or, it may be, to a certain group of men or to a particular individual. In neuropathic persons the transition to delusions of conspiracy and persecution readily follows.

Of late years, a new school has arisen in Vienna which, under the leadership of Freud, has devoted itself to the interpretation of the neuroses and allied states, and has been extended by Bleuler and Jung to the interpretation of the phenomena of dementia praecox. A procedure was evolved which has received the rather imposing and suggestive name of psychanalysis, and by its means the hidden origin of various phobias, delusions, and other symptoms are supposed to be unraveled. Painful and re-

pressed memories are given free vent, and the patient—so it is claimed—cured. At the very outset of our inquiry into the method it becomes apparent that Freud and his disciples are obsessed by the single factor of sex. In their eyes every symptom, every phobia, delusion, impulse or obsession has its origin in the repressed memory of some sexual experience, some sexual trauma received in childhood; further, every dream has a sexual origin, has a sexual content and a sexual significance, and, according to Freud, dreams thus constitute a powerful factor in the production of mental symptoms. In order that we should be able to form a proper judgment of both of the method and of the claims of its votaries, it will be necessary to accord it a brief consideration.

To begin, psychanalysis is an evolution from other and relatively simpler procedures, and the latter, in turn, had their origin in practices in which superstition and magic played the essential rôles. Space will not permit of even the enumeration of the many mystic and religious practices of ancient times, nor of the survivals of these in later days. Suffice it to say that among them were various theories of animal magnetism, advocated by Pompinatius, Agrippa, Paracelsus, Bacon, Van Helmont, and others. These theories in due course found their maximum exponent in Mesmer, who in 1774 employed magnets in the treatment of every possible affection. His results were little short of the marvelous, and his supply of magnets becoming exhausted, he discovered that he could produce the same effects by passes and gestures. He believed that animal magnetism was derived from the heavenly bodies. His theories and practices, as is well known, survived, with varying fortunes, until Braid, in England, introduced a formal method in which, though the theory of animal magnetism was denied, similar results were produced. This method, which was characterized mainly

by fixation of the eyes upon a bright object, was originally known as braidism. This, in turn, gave way to hypnotism, in which, during the artificial sleep produced, suggestions of various kinds were made to the subject. In due course, it was discovered that the phenomena observed in hypnosis were identical with those of hysteria; in other words, hypnosis was found to be merely a state of hysteria artificially evoked. How extensively hypnotism was employed in the treatment of nervous affections is a matter of history; so much so, indeed, as to make a special account unnecessary. Suffice it to say, that in the early 80's Breuer, of Vienna, in common with many other physicians the world over, was practising hypnotism. He observed among other things that whenever he was successful in arousing in the patient the memory of the occurrence which had given rise to his (the patient's) special symptom, and if, at the same time, the patient could be induced to give a full account of the occurrence and also to give vent verbally to the associated emotion, the symptom disappeared. That is, the mind was purged of its repressed, painful memory, and Breuer termed this proceeding catharsis. Later he was joined by Sigmund Freud. Breuer, let it be emphasized, hypnotized his patients and then tried to elicit from them memories of past occurrences. It is significant further to add that in this procedure he did not rely solely upon the spontaneity of the patient, but, to use his own words, made use of "medical suggestion" as is done "in somnambulism with amnesia." That memories evoked under hypnosis—*i. e.*, under artificially induced hysteria—are worthless and fictitious is a matter of common knowledge. Indeed, that patients suffering from hysteria react in the same way without the previous induction of hypnotism is likewise well known. That this was fully recognized by Breuer and Freud is proved by the

fact that in their book "Studien ueber Hysterie" they speak of the "hypnoid states" of their patients.

Subsequently Freud made, as he believed, an important modification: he dispensed with hypnotism and then renamed the procedure psychanalysis. A moment's reflection will convince the reader that while Freud dispensed with formal hypnotism—*i. e.*, while he no longer made use of braidism, passes, sleep suggestions and the like—it was impossible for him to dispose of the hypnoid state; for we have learned that hysteria and hypnosis are identical conditions. Finally, the technic instituted by Freud was such as to lead inevitably to a greater or lesser induction of autohypnosis. The patient was placed upon her back upon a couch and was spared every possible muscular effort and every diverting sensory impression, such as might disturb her in her concentration on her "internal psychic processes." In other words, psychanalysis is but the final stage of a series of procedures of which animal magnetism was the beginning, and mesmerism, braidism, hypnotism, and catharsis the successive and intermediate phases.

Let us pursue Freud's method a little farther. Freud endeavors to obtain access to the memories of the patient from the very earliest experiences of the latter onward. She is requested to tell everything that comes into her mind, whether she thinks it important or unimportant, whether it seems relevant or senseless. She is especially requested not to suppress any thought or idea because this idea happens to be shameful or painful. In the very beginning of the account given by the patient, lapses of memory become apparent. These may have to do with every-day occurrences which have been forgotten, or to relations of time or of cause which have become disturbed, so that results are obtained which cannot be understood. Freud claims that no neurotic history can be elicited which does not

reveal amnesias of some form or other. If the patient be urged to fill up these lapses of memory by an increased effort of attention, it is noted, says Freud, that the ideas which now occur are repressed with every effort, until finally, if the memory really appears, the patient experiences a marked sense of discomfort. From this observation Freud concludes that the lapses or lacunae of memory are the result of a mental action which he terms repression (*Verdrängung*), and as the motive of this repression he recognizes feelings of aversion or dislike. The agents which have brought about this repression he believes he recognizes in the resistance which is offered to the memory reproduction. He regards the ideas which appear under these circumstances as derivatives of the suppressed psychic pictures; as transformations of the same, the direct result of the resistance offered to their reproduction. The greater the resistance, the more pronounced is this transformation.

The truth of the memories elicited from a patient under the above conditions may very justly be questioned. How little reliance can be placed upon the sayings of patients in hypnosis and the hypnotic state of hysteria has already been pointed out. Further, that the patient responds readily to the slightest suggestion received from without goes without saying, and that the physician makes such suggestions unintentionally and involuntarily there can be no doubt. The séance, says Freud, has the character of "a conversation between two persons"; and the fact that the psychanalyst always finds that which he is seeking to find leaves no room for doubt. He invariably finds the repressed memory of some sexual misconduct, some sexual transgression, some sexual trauma experienced in childhood.

It may be safely said that whatever of truth there is in the relation of repressed complexes to the production of various mental symptoms, had already been pointed out by Janet in his

discussion of psychasthenia. (See p. 187.) Janet clearly indicated the rôle in the evolution of the phobias, obsessions, states of indecision and the like, of occurrences in the patient's past of which the latter is ashamed, the recollection of which is painful and which he tries to forget. The psychanalysts have uniformly failed to give to Janet's discovery recognition and have restricted all causes to the sexual factor. To this sexual factor which at times is represented by the memory of a sexual trauma, at others by a repressed sexual desire, they have given the name "the libido." Freud believes that the symptoms always have their origin in some passionate sexual aggression of childhood. Others than myself have dwelt on the glaring inconsistency implied by the sexual immaturity of children and the intrinsic biologic improbability of this view.

Freud, as already stated, further believes that in the study of dreams we have a method of access to repressed memories. These memories are always of sexual occurrences, often of suppressed sexual desires, which in the dream are represented as fulfilled. The patient, in a dream analysis, is requested to make an oral statement of the dream or to give an account in writing, and in so doing he is to communicate every idea without exception that occurs to him in connection with the dream. Ordinarily, according to Freud, a person thinking about a dream will reject this or that idea suggested by the dream as unimportant and as having no connection with the dream. It is this censor or critic, as Freud calls it, which under ordinary circumstances causes the patient to reject certain ideas from the communication; but if the patient can withhold the critic, in thinking over the substance of a dream, a psychic material is furnished which leads to the solution or unraveling of the dream.

Every dream, according to Freud, has a manifest or apparent content, that which appears on the surface of the recital, and

a latent content; *i. e.*, the material derived from the dream when the patient gives himself up to the unrestrained association of ideas which ensues when he dwells upon the dream. Further dreams reveal, in addition, a process of condensation. Thus, when we compare the number of ideas contained in a dream, as written down from memory, with the number of ideas revealed in the latent dream content, it becomes apparent that a very great condensation has taken place. We do not find a single factor of the dream content from which threads of association do not lead into three or more different channels; there is no situation which is not pieced together out of three or four impressions and experiences.

During the process of eliciting the latent dream content, the mind passes from the thoughts and conceptions to which it by right belongs to others which have no claim to such an emphasis or importance, and it is this process which has to do with the concealment of the meaning of the dream and with making it unintelligible. This process, to which Freud ascribes great importance, he terms "dream-displacement" or *Traumverschiebung*. It would seem that that which is most vivid in the dream content would be the most important, but, according to Freud's theory, it is precisely in an obscure dream element that he finds the direct evidence of the most important dream thoughts.

The kernel of the problem, says Freud, lies in the displacement. The essential condition of the displacement is a purely psychologic one. It is of the nature of a play of motives or activation of motives. We ascertain the cause of this activation of motives when we realize that we are compelled to break off in communicating the contents of a dream, because thoughts present themselves which cannot be revealed—cannot be spoken of to others—without the injury of most important con-

siderations, personal and private. Freud asserts that this is true of the content of every dream; that every dream contains thoughts which necessitate privacy. If, Freud says, he pursues the dream-thought for himself, he arrives finally at thoughts which surprise him, which he did not know existed in him, and which not only appear strange to him, but are also unpleasant, and which he, for this reason, would energetically resist. Freud says that he cannot do otherwise than to suppose that these thoughts are really present in his soul-life (his subconsciousness?), and possess a certain psychic intensity or energy, but, because they had been in a peculiar psychologic situation, they could not become known to him; *i. e.*, could not reach his consciousness. He terms this condition *Verdrängung*, repression. He says he cannot refrain from concluding that between the obscurity of the dream content and the condition of repression there is a causal relationship, and he concludes that the dreams had to be obscure in order that the tabooed dream-thoughts should not reveal themselves. The misrepresentation of the dream serves to conceal the latter.

Freud believes that the dream-work, "Traumarbeit," is one of a series of psychic processes to which the origin of hysterical symptoms, phobias, obsessions, and delusions are to be ascribed. Condensation and especially displacement are characters never wanting in the other processes as well. Freud believes that a whole train of phenomena of the every-day life of normal individuals—forgetfulness, unconscious mistakes in speech, in simple acts and other errors—are due to analogous psychic mechanisms.

Freud's therapeutic application of the dream consists in having the patient submit himself to the procedure already outlined, *i. e.*, of allowing all of the thoughts suggested by the dream, no matter what their character, to find verbal expression,

and, just as in his method of free association, the suppressed, painful, or shameful thought thus finds a vent. Freud assumes that even in the deepest sleep a certain degree of psychic activity is present which manifests itself as a watchfulness or guardianship over the sleeper. This guardian-like attention or watchfulness concerns itself, among other things, with a suppressed sexual desire, and forms with the latter the dream, the dream being a compromise of this guardian-like attention and suppressed desire. Thus is produced a kind of psychic relief for the suppressed desire, for the dream represents the desire as fulfilled.

Whether it is true that every dream has a sexual content may be safely left to the sober testimony of human experience. It is extremely probable that the method employed by Freud of itself suggests the memories of sexual occurrences; sometimes, too, there is reason to believe that the memory elicited is fictitious. The dream is so often retold and rewritten—usually after visits to the psychanalyst—that the material finally obtained has about as much value as that obtained by the other method; and into this material the psychanalyst, as before, reads the phantasies of his own autosuggestions.

It is extremely probable, further, that the psychology of dreams is not nearly as complex as the psychanalysts would have us believe. In all probability, dream conceptions arise just as the sleeper is in the act of awakening, *i. e.*, of entering into consciousness, or during such intervals or periods of sleep in which the sleep becomes relatively light, so that the level of consciousness is approached or perhaps nearly reached. There is in every act of awakening an intermediate twilight state of mind, usually very brief, but sometimes prolonged. Dream conceptions have their origin apparently in vague sensory impressions reaching the imperfectly submerged consciousness from without; or, perhaps,

at times they are somatic in origin. At any rate, their arrangement into some semblance of order and sequence occurs subsequently to the act of awakening. Usually, too, this arrangement is automatic, but such material is capable of endless manipulation in the way of interpretation, and when submitted to the vagaries of a procedure indistinguishable in its character from a hypnosis may yield anything that the psychanalyst is looking for.

Another method of bringing to light repressed or submerged complexes is that of the association test, applied by Jung and others. The patient is told that as soon as he hears a given word, he is to utter at once the first word or thought that comes into his mind. A series of words is then read to him, and the time elapsing between the reading of the word and the reply is recorded by a stop-watch. If now it be found that the time elapsing—the reaction time—is suddenly increased, as though there were a brief period of hesitation, it is probable that a complex has been aroused. The word read by the investigator is the stimulus word; the word uttered in reply, the reaction word; and a word which betrays an increase in time reaction may prove to be a complex indicator. An ordinary reaction may require between one and two seconds; say, from one and two-tenths to one and eight-tenths seconds; if the reaction time is suddenly lengthened to three, four, or five seconds, there is reason to suspect the existence of a repressed complex. The list of words should be reasonably long, and should contain, in addition to miscellaneous words expressive of various objects and actions, also a carefully selected number, based upon the possibilities which a previous general study of the case has suggested to the examiner; these words should be interspersed at irregular intervals. In addition to the increased time required, the reaction word may also be significant if the association be unusually obscure.

or apparently non-existent. Again, it is also significant if, after a reaction word with increased time has been noted, delay, though less in degree, is observed in the next word or two following. It would seem as though the patient had been slightly disturbed and the disturbance transmitted to the immediately succeeding tests. It seems almost unnecessary to add that the results attained by this method are commonly quite trivial and, further and above all, are again subject to the personal vagaries of interpretation of the psychanalyst.

It remains to summarize briefly some of the essential features of the psychology advocated by the freudian sect. In the first place they create out of nothing a censor, a wide awake critic, guarding the dream of the sleeper; secondly, they create an unconscious something which in like manner guards us during the waking period and shoves unpleasant and painful memories into the subconscious. How completely the latter fails when the individual has a real worry, such as a business reverse, a financial disaster, the death of a beloved child, or, it may be, the recollection of a crime, is a matter of human experience. Thirdly, all of the phenomena observed in both dreams and waking periods are interpreted in terms of the sexual desire, the libido. Fourthly, the ideas presented by the dream or which are revealed in the waking period do not signify what they appear to signify, but are masked and disguised. In other words, they are merely sexual symbols. As there is not a single object in the range of human ken to which a sexual significance cannot be ascribed, the task of the psychanalyst is easy. If the object be elongated or if it, perchance, have a cavity the question is already answered; it may be a key, a lock, a snake, an open fire-place, a lead pencil, a cup, or anything else imaginable. The horse, too, and other animals are favorite symbols. Further, at times the symbols suggest one thing and at other times the exact opposite. One thing

is clear, however; the interpretation always depends upon the psychanalyst, upon his resourcefulness, the fertility of his imagination; in other words, upon his own, his autosuggestion. The conclusion already exists preformed in his mind that the patient is suffering from repressed sexual memories; and that he finds them goes without saying. Indeed, that he finds everything he is looking for we have already seen.

Frequently, the libido is expressed in terms gross and obscene; at other times it is, as the psychanalysts explain, sublimated; that is, it becomes refined, allusive, transformed. However, the objection to psychoanalysis lies not so much in its details, as in the hopelessly illogical position of its votaries. Thus, it began with the theory of sexual traumas in childhood; these have now been carried back by Ferenczi into the period of intra-uterine life. Further, in the act of passing through the pelvis of its mother, the child is badly frightened, and the fear which it experiences is the prototype of the attacks of fear from which it suffers at later periods in its life. Such attacks awake the memory of this birth fear. Further still, the child finds itself in a state of auto-eroticism. At three or four years of age, it is already sexually aggressive, and the dominating factor is now incestuous love. Indeed, from now on the "Œdipus complex" plays a large rôle in its life. Henceforth the future of the individual is dominated by his eroticism. All of his tendencies, all of his peculiarities—good, bad, criminal—are the result of the libido. In his dreams and in his neuroses, he rehearses not only the life of the child, but that of primitive man. If he have the misfortune to suffer from an epileptic attack, the latter is explained as an overpowering of the moral consciousness by the criminal unconsciousness; the attack replaces the sinful sexual act. Melancholia and mania, too, are explained as repressions and displacement of sexual desire; *i. e.*, of the transformed libido.

Paranoia is explained, on the other hand, as an irritation of the anal erogenous zone, and, on the other, as an expression of homosexual love. Every possible affection is explained by the libido. The list recently furnished by an American writer includes practically all diseases except the exanthemata.

One word more and our consideration of psychanalysis will have been completed. It is a favorite theme with psychanalysts to draw an analogy between the evolution of the body and the evolution of the mind. That the body has, in the course of the countless ages required for its development, passed through many successive stages and transformations is a deduction which rests upon familiar facts furnished by both phylogeny and ontogeny—by both biological history as revealed by comparative anatomy and paleontology, on the one hand, and by embryology, on the other. That the brain, the organ of mind, has taken part in this evolution goes, of course, without saying; and that like all parts of the organism it bears in its structure the record of this evolution is doubtless equally true. It must be freely admitted, also, that this must necessarily be true of the mind as well. This is perhaps what the psychanalyst tries to convey when he says that the dream and the neuroses embrace not only the life of the child, but also that of the savage and primitive man; or when he states that the patient suffers from reminiscences of humanity and that his history embraces all mythology. Stated in less fanciful phrases it means that our mental embryology like that of the body rehearses in a measure the various steps of the mental evolution of the race. While the probable and general truth of this inference may be admitted, the psychanalyst now falls short of the final conclusion, which is this: Just as the body may reveal the evidences of arrest and deviation of development, so may the mind. That such arrests run parallel with arrests of the brain is shown by our studies of the brains of idiots and

feeble-minded children; and when we deal with patients suffering from the neuroses and mental affections generally, we are dealing with individuals of whom it is equally true that they are organically defective. This in its essence is what is meant by neuropathic and neurotic. The neuroses, psychastenia, hysteria, and hypochondria present not only in the history of heredity but also frequently upon the very person of the patient, the evidences of an imperfect or a deviate development. Mentally, likewise, the neuroses in turn present deficiencies and deviations which give to each its basic symptomatology and which in each are innate and developmental. Claims of cure by psychanalysis, are therefore, in these affections, as fallacious as in the case of hypnosis. One could with equal reason expect to cause a harelip or a cleft palate to grow and become normal by talking at it, or to cause a supernumerary digit or a cervical rib to disappear by hypnotizing or psychanalyzing the patient. At most, surface symptoms alone can be played upon; the underlying basic condition can never be in the slightest degree influenced. (See also chapter on Treatment.)

Let us now turn our attention to the psychology of dementia praecox. We are at once impressed by the fact that in the beginning the symptoms are not those of dementia, but those of confusion, just such symptoms as we should expect in a toxic state. The onset of symptoms is gradual, usually bearing the character of a confusion, sometimes with elements of systematization and accompanied by exhaustion. The elements of confusion, dissociation, hallucinations, illusions, unsystematized or feebly systematized and fragmentary delusions, are all present in a more or less dominant degree. Years ago, Regis, Christian, Anglade, Macpherson, Serieux, Trepsat, Dide, and others frankly treated this mental state as a confusion, and this is an interpretation which I have myself emphasized. A word that

Kraepelin frequently employs in describing it is *Zerfahrenheit*, which can only be rendered as confusion or dissociation. Admitting freely the fact of confusion, however, it soon becomes evident that other elements are present which demand consideration. A recognition of this fact is of the utmost importance. In it I believe lies in a large measure the explanation of some of the symptoms which seem special or peculiar to dementia praecox. There is in dementia praecox, as in psychasthenia and in hysteria, a diminution in the activity of the field of consciousness. Janet has expressed this idea by the words *abaissement du niveau mental* (lowering of the mental level). I have myself in various papers used the expression "reduction of the field of consciousness" to convey the same idea. Weygandt, in discussing the psychology of the mental feebleness in dementia praecox, terms the end process of the disease an "apperceptive dementia." I do not think that much is gained by the use of this term. According to Wundt, apperception is the special process by which any psychic content is brought to clear apprehension. Into such a process many factors must enter—an act of will, the multiple qualities of the object or idea, the sensations, emotions, and, as a corollary, the impulses to which these necessarily give rise. Evidently an apperception embraces many if not all of the factors of psychic activity, and to speak of an apperceptive dementia conveys little more than to speak of dementia as a whole. Further, Weygandt, it is to be noted, applies the term only to the end process of dementia praecox. Dementia praecox, as we all know and as has already been emphasized, is not a dementia in the beginning, but only in the more advanced stages of the disease. The term "apperceptive dementia" is not, therefore, as Jung would have us believe, the equivalent of Janet's term, "depression of the mental level," and if we strive to modify it by changing it into "apperceptive weakness" little is

gained for the reasons already indicated. Janet's term, which forms the keystone of his conception of psychasthenia, is applied to the dynamic state of the mind. Psychasthenia is essentially a state of psychic adynamia. This is exactly the idea that is conveyed by the term "depression of the mental level." It is a condition of the mind in which the force, the intensity of its processes, is lowered. The mind in such a state is like a fire which, instead of burning brightly, is reduced to embers, it may be barely glowing. It is not a state, however, which necessarily implies disintegration, deterioration, or dementia.

The existence of such a diminished activity of the field of consciousness can, I think, be admitted without hesitation. It is essentially a state in which the intensity, the vigor of the metabolic processes of the cortex are lessened; just such a state as we have reason to believe exists in psychasthenia. When we fully appreciate this fact, it illuminates much in the symptomatology of dementia praecox that seems obscure. Let us briefly consider some of the symptoms. The slowness of speech and poverty of thought which eventuate in mutism, in catatonias, in stupor, find their measure of explanation in an adynamic state. This is also true of fixation of position, stereotypy, automatism, perseveration, verbigeration. Here the psychic current, which in the normal mind is like a river broad and deep and easily flowing, has been reduced to a shallow, a narrow, and a monotonously trickling stream. Continuous or interrupted, it is the only thing that remains in the field of consciousness. Jung and others have thought that its monotony, its sameness, is due to the fact that the entrance of other associations into the stream is inhibited or blocked; but surely dams, obstructions, are not necessary when the beds of the tributary streams are dry, for we must remember that the cortex is adynamic as a whole. Again, it would appear that the adynamic state of the cortex

does not involve the latter equally or uniformly and, here and there, now and anon, tributary currents join what is left of the main stream, but they do so irregularly, at unusual points, and at variance with the orderly sequence of normal psychic processes. We find that instead of normal associations, mere sound associations, associations of coarse resemblances, and of mere contiguity are produced. The patient's utterances may be confused, disordered, incoherent, and this confusion becomes more marked in proportion as unrelated complexes force themselves into the field of consciousness. Similar phenomena are, of course, equally evident when the patient writes letters or attempts to express himself otherwise on paper.

Again, it may happen that the field of consciousness is more greatly reduced dynamically than the cortex as a whole or than other portions of the latter. Now, it is probable that under normal conditions, the activity of the psychic field is so great that it diffuses to and beyond the boundaries of consciousness, but if the activity of the psychic field is relatively diminished, it results dynamically that the direction of the diffusion is reversed, and that other activities now flow into the less resistant field. These activities probably consist of complexes—of groups of associated ideas—of greater relative dynamic power. That they necessarily consist of complexes which have been repressed is not proved; that they sometimes consist of complexes representing wishes and things desired is very probable; that they also represent things of which the patient stands in fear and dread—complexes that are painful—must be equally admitted.

Negativism probably finds its explanation in the fact that every impulse or feeling is represented in the psychic make-up, not only by a positive complex, but also by its exact opposite; indeed, it is probable that the positive complex owes its existence

to its differentiation from the general psychic material, which thus becomes its negative. Now it would seem that in the lowered, adynamic state of the field of consciousness, the positive complex cannot find expression; of necessity, its opposite, being dynamically stronger, flows into the field and finds expression. The symptom to which Bleuler has given the name ambivalence, and which consists in the tendency of the patient to give expression equally to opposing impulses, has, it would seem, a similar explanation and need not detain us. It may be pointed out, however, that ambivalence is first cousin to the symptom of indecision of the typical psychasthenic. Again, the abulia of catatonia also finds a ready explanation in the adynamic mental state. Further, the lack of inhibition, impulsivity, clownism, mannerisms, special gestures are also rooted in the same condition. The particular picture presented by a given case at a given time is obviously linked with the nature and character of the thought or psychic process that is persisting in the narrowed field of consciousness. It is not surprising, for instance, that a tailor should make recurring movements of sewing or a woman of washing or wiping. Our Freudian friends, however, see in such phenomena the persistence of repressed sexual complexes.

Finally, the activity of the field of consciousness may become progressively more and more reduced, until no outward manifestation of any psychic activity is longer evident; under such circumstances stupor, usually a catatonic stupor, supervenes.

The hallucinations present in dementia praecox are due apparently to the toxic irritation of sensory areas of the cortex. The excitation resulting breaks in an unrelated manner into the field of consciousness, and the impression produced on the mind of the patient is that of a sensation of extraneous origin. No wonder that the patient refers the noises and the voices to the

external world. In such a case, a separate portion of the personality addresses itself to the main body of consciousness. Very frequently, indeed, almost always, visceral hallucinations and often sexual hallucinations are also present. The delusions—and I am speaking now mainly of the hebephrenic and catatonic forms—are often feebly held, commonly disconnected and disordered, and at most but poorly systematized. What a fertile field, what a wealth of repressed sexual complexes, they have yielded to the psychanalyst I need not say. That the portion of the cortex irritated by the toxin may be other than a sensory area need hardly be pointed out. In this way long buried associations—associations which have no relation to the subject matter of the field of consciousness—may break in, just as do hallucinations. That such associations are regarded as strangers by the psyche of the patient can also be readily understood. At other times, owing to the low dynamic tension of the field of consciousness, associations long dormant may diffuse into the field, may become incorporated with the stream of thought, and may greatly modify the clinical picture presented; and that this enters into the explanation of such symptoms as impulsivity, clownism, special gestures, and the like is extremely probable.

Bleuler, in his article on *dementia præcox* in Aschaffenburg's *Handbuch der Psychiatrie*, makes a most elaborate subdivision of the mental symptoms, a subdivision which I believe, instead of illuminating the subject tends to add to its obscurity. I shall not, for instance, take up the subject of autism and autistic thinking. To me it seems quite natural that a patient in a condition of psychic adynamia and suffering with numerous visceral or, better, coenesthetic hallucinations, should be taken up with his own world of self, with its persecutions or its expansions; which last our Freudians translate into wish fulfilments. I

cannot understand, however, why this autism should be given a sexual character as is done by the psychanalysts; Freud, for instance, employs in its stead the term "auto-erotism"; but it is difficult, for that matter, to understand the psychanalyst's attitude at all, especially when as Bleuler says the only treatment for dementia præcox is the psychic treatment. Inasmuch, he tells us, as the symptomatology of the disease is dominated by the complexes, and as these enable us to penetrate into the psyche of the patient, we should expect to be able in this manner to influence them. To talk of psychanalysis as a treatment for a patient with the earmarks of a defective development, a positive Wassermann, a toxic metabolism, defensive ferments, and what not, is, to my mind, very much like attempting to treat a broken leg or a typhoid fever by the same method.

The theory of a reduction of the field of consciousness is as applicable to the explanation of hysteria and hypnosis as to dementia præcox, and yet how widely these affections differ! This difference the Freudian theory of repressed complexes fails to explain. In dementia præcox the depression of the cortical activity is apparently due to a toxin, a defensive ferment, the result of the ingress into the blood of an abnormal hormone from the sex glands (see p. 131). It is not improbable, also, that the nerve substance in dementia præcox is inherently defective and feeble in resistance.

Because of his interpretation of dementia præcox as a cleavage or fissuration of the psychic functions, Bleuler has invented and proposed the name "schizophrenia," which he believes to be preferable to dementia præcox. However, as we have seen, cleavages and fissurations of the personality are not confined to dementia præcox. They occur in many forms of mental disease, as well as in the neuroses; in my judgment, the term

being of such general significance offers no advantages over dementia *præcox* and should be rejected.

It is exceedingly probable that the psychology of paranoia does not differ radically from that of dementia *præcox*. That we have an inherently defective individual to deal with is evidenced both by his heredity and by his person. Further, that even in paranoia *vera* the patient is the victim of abnormal feelings, of somatic and other hallucinations, is a matter of clinical observation. That he has a morbid, a diseased personality cannot be gainsaid, and that under these circumstances he should react abnormally to his experiences, to the things he actually sees and hears, is not surprising. Indeed, that he should regard the various happenings of the external world as bearing directly upon himself is, it would seem, exactly what we would be led to expect, and that he should attribute his morbid and illusory feelings to the same source, logically follows. These feelings act just as do frank hallucinations and address themselves to the main body of his consciousness as a separate portion of the personality. Further, the personality is diseased, sensitive, and taken up with itself; that the complexes arising should sooner or later deal with persecution is again not surprising. The change of personality, the transition to the expansive phase, is probably due to a change in the feelings, the cœnesthetic sensations, during which depressing somatic hallucinatory feelings give way to fictitious feelings of strength and power; perhaps this change is in keeping with the increasing degeneration of the patient and consonant with retrogressive changes in his metabolism.

The above interpretation seems to the writer much more logical, to say the least, than that offered by the psychanalysts. The fact that Freud and his followers see nothing but the libido has led them to interpret paranoia as the manifestation of an un-

requited homosexual love; if a paranoiac slays his victim, it is not because the latter has been defaming, ruining, poisoning the patient, but because he has failed to return the homosexual love of the patient! Surely the facts of experience flatly contradict this position. Of the large number of criminal insane which it has been my fortune to study I cannot recall a single instance in which such an explanation would apply. Sexual factors are, it is true, not infrequent in female paranoiacs, but they are rarely homosexual. In men sexual factors are much less frequent, and in the experience of the writer they have not been homosexual. The patient has slain his victim because the latter, by his machinations and persecution, has made life impossible; he has not slain him because of unrequited homosexual love. When sexual factors enter, as in alcoholic paranoia, the patient slays the wife or the mistress whom he believes has been unfaithful. I know of no parallel instance in which the victim was a man.

Finally, when we analyze the primal instincts of mankind, sexual factors do not assume the preponderating importance which the Freudians would have us believe. The primal instincts may be enumerated as follows—first, the instinct of self-preservation; second, the instinct of perpetuation of the species; third, the instinct of communal preservation and perpetuation.

The instinct of self-preservation embraces the taking of food and the protection of the person. Complexes dealing with these factors are found among the insane in great number. We have, on the one hand, the great mass of delusions relating to food, poisons, and the digestive function, and, on the other, the delusions relating to physical safety. The instinct of perpetuation of the species embraces the complexes dealing with the sexual life. The complexes here deal first with hypochondriac states (see p. 376); second, with phobias and obsessions

and lastly, with manifold delusions dealing with sexual love. The instinct of communal preservation and perpetuation, or as it had best be termed, the instinct of herding together—for man is a gregarious animal—embraces a mass of complexes which in number and variety greatly exceed those of the other primal instincts, numerous as these admittedly are. The relations of the individual to the community in which he lives are multiple and complicated in the extreme. It would alike be a hopeless as well as an unnecessary task to attempt to enumerate them. Further, these relations are exceedingly close and the interchange of function unceasing. Lesions, therefore, between the individual and his surroundings are relatively frequent. The workman who falls behind, who is jostled or jibed by his fellows or criticized by his employer, breaks with his surroundings as soon as the idea is bred in his mind that he is being persecuted. That such ideas may be evolved under an almost infinite variety of circumstances is a matter of common experience. Gradually the breach between the patient and those about him widens until, in his progressive mental degeneration, he believes that he is not of them, but that he is of special birth, and creates about himself a world of his own, the complexes of which, as we have seen, become fixed and inaccessible.

PART IV

CHAPTER I

TREATMENT

PREVENTION

UNDER the head of treatment it is important first to consider prevention. Insanity when once established offers in a large number of cases so little prospect of improvement or recovery that prevention becomes of prime importance; it is in this field, rather than that of cure, that the human race is to win some of its greatest victories. Neuropathy, which is but another word for imperfect and deviate development, for arrests and irregularities, for pathologic changes, minute or gross, is due to causes active, for the most part, in the ancestry. These causes embrace all influences which impair or damage the organism; among these are syphilis, alcohol, tuberculosis, and the infections and intoxications generally. The rôle played by syphilis and alcohol is of overwhelming importance; so great, indeed, that the neuropathy to be ascribed to other causes is almost a negligible quantity.

It is extremely probable that alcohol acts not only by damaging the blood-vessels, the heart, the nervous apparatus and viscera generally, but directly influences the ductless glands, the pituitary, the thyroid, the testes, and ovaries. We know that upon the integrity of these glands depends the harmonious and full development of the organism. That they should be vulnerable to a toxic agent, such as alcohol, is not surprising;

and it is probable that when they are thus damaged, it is no longer possible for the organism to transmit to its progeny the same potentiality of development as in health.

Syphilis, as we know, may be directly transmitted to the offspring, and in this way it exercises a widespread and baneful influence; idiocy, imbecility, high-grade deficiencies of all kinds may be traced to it. However, syphilis also acts in another way. Like alcohol, it damages the organism as a whole; weakness and degeneration naturally follow in its wake. Finally, we find that syphilis and alcohol are very frequently associated, and in their combined action we have a most potent cause for impairment, an impairment which we have reason to believe persists through generations.

Tuberculosis, the various acute infectious diseases, as well as the intoxications other than alcohol, may play a rôle in the weakening of stocks, but if so their rôle is less apparent. Tuberculosis is, it is true, met with in a large number of the insane, notably in dementia præcox, but it is extremely likely that this vulnerability is secondary to a weakened power of resistance of the organism, and is not of itself a primary cause. As regards the acute infections, there is no direct evidence that they exercise deteriorating effects transmissible from parent to offspring. In intoxication by morphin, cocaine, and other drugs the number of cases, compared with those of chronic alcoholic abuse, is so small that they play no obvious or important rôle in the production of inherited neuropathy. It is syphilis and alcohol which stand prominently forth as the great causes, and it is in their prevention that the great hope of the future lies.

Physicians should, of course, advise against marriage when either party has a neuropathic ancestry or is the victim of an inherited neuropathy. Unfortunately, the advice is only

infrequently accepted. If it is rejected, we should at least urge delay until adult life has been well entered and the likelihood of an inherited psychosis manifesting itself diminished. Marriage is sometimes advocated by physicians because insanity is more common in the unmarried, but it should never be advocated under the conditions we have just considered. Again, if insanity is already established it is bad for the patient, especially if the patient is a woman. Finally, marriage between cousins, if the stock bears a neuropathic strain, is especially dangerous. However, in the absence of such strain, in the presence of a clear family history, there can, on physiologic grounds, be no objection. The results of the interbreeding of domestic animals do not, to say the least, justify an opposite opinion. However, in the human race, a heredity without taint appears to be the exception.

Among the expedients that are frequently advocated for the prevention of insanity is sterilization, carefully regulated by law. It would appear that there is no sound or ethical objection to its application in the case of patients who are repeatedly under the care of institutions for confirmed psychoses, or who are morons, mattoids, or confirmed criminals. The baneful effect on the community by the free propagation of the degenerate and criminal classes can with difficulty be estimated. Much can, however, be accomplished by the isolation of these unfortunates. In the case of the chronic insane and the defectives, the isolation may be made practically permanent; unfortunately, this is not the case with the criminal.

Time and again the physician is confronted with the problem of the education and training of a child, nervous it may be, or the victim of a neuropathic heredity. Efforts should be made to guard the child hygienically from its early infancy. As far as possible the exhausting influence of long-continued internal

disturbances, of repeated childhood infections, of attacks of convulsions, should be combated. As the child approaches the years of school great care should be exercised to prevent undue mental strain. The child should first be submitted to a thorough psychologic examination, preferably by the Binet-Simon system, and the results used as a guide in the future course of education. It is wise, also, to repeat this examination at intervals of a year or two, not so much to determine the existing state of the child's training, as to determine whether there has been any increase in the basic mental power.

In devising a plan of education, we should remember that nervous children become exhausted very readily, both mentally and physically. As far as possible school tasks should be limited to the school-room and the work should be interspersed with play, with diversion in the open air. The work itself should be presented in a concrete form, should not necessitate abstract conceptions, and should be made humanly interesting and attractive. Thus, the child should be taught elementary natural history from the actual objects, drawing, molding in clay, geography from large and small globes, physics, and other natural branches with simple apparatus and models. If taught to read, the subject matter should be of such a character as appeals to a child, and may be made the basis of a story by the teacher. Later, manual training and more serious mental work should be attempted. The teaching should always include something which experience has taught appeals to the child.

The nervous child is apt to be very sensitive, and care should be taken not to make it self-conscious; nothing should be said or done which demeans the child in its own eyes, or, least of all, in the eyes of its comrades. That such a child stands being teased, jibed, or made fun of very badly is a common

experience. While this care is being exercised, the wholesome discipline of teaching the child to do its part at school, of educating it to a sense of its responsibility to the teacher, should be faithfully carried out. The child's spontaneity should not be suppressed, but it should be encouraged to do its work as best it can. It should be taught gradually to rely upon itself. Its initiative and will power should be strengthened, but, at the same time, it should be taught self-control. The latter is perhaps the most difficult task before the teacher. Coddling and indulgence must, of course, be avoided. On the other hand, excessive work is bad; fatigue and the habit of inattention become established; after all it depends upon the teacher how far to go. In this connection should be mentioned the bad effect of the severe examinations held periodically in most schools.

Care should be taken that the summer vacations are spent, if possible, in the country, and that physical exercise and the companionship of wholesome playmates are not lacking. In other words, the life should be made as normal as possible.

As the years of puberty are approached, the fact should be borne in mind that during this time the child is less capable of doing fatiguing work, and especially is this true of girls during the menstrual epoch. Masturbation should when discovered be, if possible, corrected.

If the child remains well, grows up, and the time for choosing an occupation approaches, the physician should advise against any calling involving much strain. Usually children of a neuropathic heredity are unfitted for a professional career. Such a career necessitates hard mental application, with severe examinations during the student period and usually entails a life of more or less tension and strain afterward. On general principles, work on a farm, the occupation of florist or fruit

grower, is greatly to be preferred. However, as far as practicable, the inclinations of the individual must be followed. The depression caused by a hated occupation, one which promises nothing for the future, and in which the man feels that he is out of place, often exercises a most disastrous effect.

EXTRAMURAL TREATMENT

A knowledge of the management and treatment of mental disorders on the part of the practising physician is inseparable from his calling. It is invariably the general practitioner who sees the patient first, and it devolves upon him to decide not only upon the immediate care and treatment, but also upon the eventual course to be pursued.

Naturally the first object is to insure, as far as possible, the safety of the patient and of those about him. Almost immediately there comes up the question as to commitment. In a large number of cases this question almost decides itself. This is the case, for instance, in acute mania and in other forms of mental disturbance with excitement, and also in most cases of delusional lunacy. Commitment, however, is attended by a serious responsibility for the practitioner, and it is necessary for him to act cautiously and to bear in mind a number of important points. In the first place, he should never allow himself to be hurried as to commitment. He should always insist upon sufficient time to make a proper examination and at least an approximate diagnosis. Even in cases attended by marked excitement should he observe this rule. It is exceedingly annoying, for instance, to a physician to find that he has committed a patient to an asylum who was merely actively delirious, and in whom the delirium, as is usually the case, has subsided in a few days—perhaps shortly after the admission into the asylum. In such an instance the friends and relatives

who were active in insisting upon commitment may be the very ones to lay blame upon the physician—to accuse him of having acted hastily and of having needlessly placed the stigma of insanity upon the patient and the patient's family. It is necessary, therefore, that the physician should be able to make a differential diagnosis between a mere delirium and a mania. A delirium has a duration of a few hours, several days, or less frequently, a week or two. A mania, on the other hand, has a duration extending over three or more months. (See p. 92.) It is of importance always to act deliberately and to avoid haste unless the facts of the illness from which the patient is suffering are very evident and urgency be great. Certainly, in all cases in which the patient is neither dangerous nor violent, the physician should take sufficient time to satisfy himself thoroughly, first, as to the actual existence of insanity, and, second, as to the advisability of commitment. The physician should invariably decline to commit whenever any doubt, no matter how slight, arises. The legal responsibility of physicians in making commitment should always be borne in mind.

The patient, having been examined and the diagnosis of insanity having been made, the physician should next consider whether the patient is dangerous to himself or others. If so, commitment should be advised. Second, other things equal, commitment should be advised when it is evident that the treatment cannot be carried on satisfactorily outside of an institution.

It becomes evident that cases of insanity separate themselves naturally into two great groups, the intramural and the extramural cases. While the intramural cases—those requiring commitment—constitute by far the larger number, a little reflection will convince us that the number of extramural cases is by no means small. Further, even the cases which become intramural are in the hands of the practitioner for a shorter or

longer period previous to commitment. Let us briefly turn our attention first to this group of cases.

As soon as the decision to commit has been reached, the patient should be carefully watched. This duty may devolve upon the members of the family, or it may be necessary for the time being to employ a trained nurse, though the latter course is usually not necessary. The transfer to the asylum should be accomplished as soon and as expeditiously as possible. In the interval no treatment whatever should be instituted. Only exceptionally is it necessary to give some sedative to moderate or allay excitement. Here the rule should be followed to give the milder drugs; that is, those which are not attended by much depression. Drugs had best be avoided or resorted to only in emergency, as, for example, when we have to choose between their use and gross physical restraint.

The cases which cannot or should not be committed—that is, the extramural cases—comprise the various transient deliria, mild melancholia, some cases of dementia praecox, mild and harmless paranoia, the neurasthenic-neuropathic insanities, and some forms of dementia, such as mild senile dementia. Let us turn our attention to the treatment of this group of cases.

The delirium which accompanies the ordinary febrile affections, the various exanthemata and infectious diseases, rarely requires special treatment. The treatment and management of the underlying disease, as a rule, alone concerns the physician. There are, however, other deliria which it is incumbent upon the physician to treat; these are delirium grave, which is fortunately very rare, the postfebrile deliria (the deliria which come on during the convalescent periods of infectious diseases, such as typhoid fever, grip, erysipelas, pneumonia, etc.), and the deliria which follow the abuse of certain poisons, such as

alcohol. The management of a delirium should be conducted upon general principles. We should bear in mind that we have to deal with two underlying pathologic factors—first, nervous exhaustion, and, second, the toxin of some infectious disease or some poison introduced from without, such as alcohol. The treatment resolves itself into the following indications: first, the elimination of the poison; second, the maintenance of the nervous strength; and third, the allaying of the excitement so far as may be necessary. As much as possible these indications must be met promptly and simultaneously. The means at our command consist in the administration of liquids in large quantities, the free use of baths, the free administration of nourishment, and the administration, when necessary, of cardiac stimulants and nervous sedatives. Liquids, of course, act as diuretics, while the action of the skin is stimulated by the bathing. If fever be present, cold sponging or other forms of cold bathing are applicable; if, however, the delirium be afebrile, as is usually the case in the postinfectious and toxic deliria, the most efficient form of hydrotherapy is a prolonged warm immersion bath. The temperature of such a bath should range from 90° to 95° F. However, in ordinary household practice a warm immersion bath can only exceptionally be used. It is not practicable, as a rule, to carry a struggling patient to a bathroom and subject him to the strain of the necessary handling and manipulation. Much more serviceable and, in some cases, more efficacious is the wet pack. This should be given in the ordinary way, save that the sheet, instead of being dipped in cold water, should be dipped in warm water. The patient, having been thoroughly and closely wrapped, blankets are applied over the sheet and the patient allowed to remain in the pack for about an hour. As a rule, profuse diaphoresis results, with a marked diminution of the excitement. In delirium of marked severity,

however, both the wet pack and the immersion bath have serious drawbacks. The necessary manipulations add greatly to the confusion and excitement from which the patient is suffering, and may in this way greatly aggravate the exhaustion. Further, neither the wet pack nor the immersion bath should be repeated too often. Especially is this caution necessary in cases in which the delirium is somewhat prolonged and in cases in which exhaustion is a marked factor. The sweating from the wet pack should in this connection be especially borne in mind.

It is of the utmost importance in many cases, especially if the delirium be violent and the patient be expending much strength in his struggles, to administer sedatives. No well-founded objection can be made to their judicious employment, for the quiet and sleep produced are of the utmost benefit. As a rule the milder hypnotics prove efficacious, and, if the patient can be induced to swallow, a dose of trional, 15 or 20 grs., can be administered; or, better still, trional with sulphonal, 15 or 20 grs. of the former with 10 or 15 grs. of the latter. Occasionally medial (veronal sodium), 10 grs., or veronal, 10 grs., with sulphonal, 15 grs., has a very happy effect. Luminal, which has of late years been added to our armamentarium and which belongs to the veronal group, often proves efficacious in so small a dose as 3 grs., and is perhaps the sedative of election. If the excitement be very great, and the struggling of the patient severe, the question arises whether some form of hypodermic medication should not be practised. In this connection, hyoscin presents itself. Hyoscin has the disadvantage of being somewhat uncertain in its action, and while by many writers scopolamin is considered to be identical with hyoscin, in the experience of the writer scopolamin is a much more certain remedy. In doses of $\frac{1}{16}$ or $\frac{1}{8}$ of a grain it acts speedily and promptly in allaying excitement. The writer, however,

rarely uses scopolamin alone, but usually together with a small dose of morphin. For instance, a hypodermic injection of $\frac{1}{16}$ of a grain of scopolamin with $\frac{1}{2}$ of a grain of morphin has a prompt sedative effect, without there being any appreciable cardiac or nervous depression. The two drugs, scopolamin and morphin, act synergistically, one reinforcing the other, only a small dose of each being necessary. Many patients after such a hypodermic injection permit of free manipulation. A bath or wet pack, which before such a hypodermic injection could only be given with the greatest difficulty, can now be given with ease. Such a patient is also much more amenable to other procedures, such as the giving of an enema or the administration of liquids by the mouth. If a repetition of the dose is necessary, the amount of the scopolamin should be reduced to $\frac{1}{32}$ of a grain. An exceedingly valuable remedy for hypodermic use is luminal sodium. It is perhaps the most useful of all and seems to be entirely free of objection. It is also very soluble and the administration of 3 grains is usually followed in some twenty minutes by marked sedation and without any appreciable influence upon the pulse or respiration.

In considering remedies which are of value in bringing about rapid sedation we should be mindful of paraldehyd. This is a remedy which produces sleep almost immediately, certainly within ten or fifteen minutes, and this, too, without producing the slightest cardiac or respiratory depression. Its disgusting odor and offensive taste are its principal objections, and yet many patients, especially male patients suffering from alcoholic delirium, can be induced to take the drug if it be suspended in whisky. In cases of great excitement a dram may be administered with prompt effect. Unfortunately the sleep it produces lasts only from two to three hours. Paraldehyd, however, may prove to be a valuable adjuvant when scopolamin and morphin or other remedies have been given in small doses and have

been ineffectual in producing sleep, or when trional and sulphonal have been given, and the remedies, acting slowly, fail of effect. Under such circumstances paraldehyd hastens the sleep, while the other remedies, already administered, prolong it. In the choice of hypnotics, and the method of their administration, we must be guided by general principles. If used at all, they should be used promptly and in sufficient dose.

Delirium is fortunately of relatively short duration, and questions as to the administration of nourishment rarely become acute. However, if there be danger of exhaustion, measures should, so far as possible, be instituted to maintain the strength of the patient; liquid food, milk, eggs, beef preparations of various kinds should be administered, and, if the loss of strength be great, heart tonics or stimulants may be resorted to. In this connection, strychnin, digitalis, strophanthus, nitroglycerin, cocaine, camphor, and perhaps pituitrin should be borne in mind. As far as possible in urgent cases these remedies, because of the more prompt and definite effect, should be given hypodermically. In certain cases, also, alcohol should be administered. This had best be given with nourishment; for example, with milk.

As we have seen, it occasionally happens that in the post-febrile period of one of the infectious diseases, for example, typhoid fever, instead of a delirium supervening, the patient passes into a condition of confusion; as a rule, this confusion is active in character. (See page 49.) As in delirium, there enter into the causation of confusion two factors: first, the toxins of the infection, and, second, persistent exhaustion. Confusion (or confusional insanity) differs from delirium not only in the less violent, less acute character of its symptoms, but also in its duration. As a rule, when once established, it lasts many months—three or four or more.

In the treatment of confusion, we are to be guided by prin-

ciples similar to those just discussed in speaking of delirium, but we are especially confronted by the all-important fact of the long duration of the illness. If the means of the patient permit, proper arrangements should be made for his care outside of an asylum. The entire treatment can in such case be conducted at his own home or at some other suitable establishment. Such a patient will require at least two trained nurses. The question of commitment depends entirely upon the fact whether the patient can be cared for satisfactorily and properly outside of the asylum. In any event, it is wise, because of his profound exhaustion, to place the patient in bed. Even cases of mild confusion do better when the plan of bed treatment is carried out. As a rule, cases of confusion are quite manageable. Food can usually be administered without much difficulty, the patients also permit themselves to be handled and bathed readily, and it is also possible, especially during the period of convalescence, to employ massage. As far as possible "rest methods" should be instituted. Full feeding, as in neurasthenia, should be carried out; milk, eggs, and other food should be given in large quantities.

Medication should be avoided or, at least, should be used only when really required, as, for example, when there is unusual excitement. The mere length of the duration of the affection is a warning against the long-continued use of drugs. This applies also to the use of tonic and supporting remedies. As a rule, medicines are required, if at all, only from time to time. General principles and common sense must guide the practitioner, for no hard-and-fast rule can be laid down. As regards hypnotics, it is a good plan to change from one to the other, and then again to omit them altogether. Especially is this the case when, as in puerperal confusion (see page 328), the patient is sometimes actively disturbed for many weeks or months. Under these circumstances we should be content

if, during critical periods, the patient secures from four to six hours' sleep out of the twenty-four; a sleep of eight or nine hours' duration is not necessary.

Now and then, as we have seen, instead of the patient passing into a condition of confusion, stupor may ensue during the convalescent period of the infectious diseases. Here, again, the question of commitment is one of practicability. If the patient has the means to employ two skilled attendants, he can be safely cared for in his own home or in some other suitable place. A treatment is to be carried out similar to that of confusion. Like confusion, stupor is of long duration. Many weeks, often months, pass by before convalescence is established, and during this time as much food as possible must be given, for the treatment is essentially supporting in character. Feeding does not usually offer much difficulty. Frequently it is possible to administer very large amounts of milk and raw eggs. Now and then, however, the stupor is so profound as to necessitate forcible feeding; that is, feeding by means of the nasal or stomach-tube. Drugs are rarely necessary. Massage may be used during the convalescence.

In confusion and stupor the circumstances which usually obtain do not differ, so far as nursing and medical attendance are concerned, from those of a case of some continued fever. The patient is, as a rule, not violent and can readily be controlled. Two nurses, one relieving the other, are necessary, as it is not safe to leave the patient alone. Because of the long duration of these affections, the expense involved by trained nursing and medical attendance outside of an asylum necessitates, in many instances, the commitment of the patient.

The consideration of the treatment of delirium and its congeners, confusion and stupor, serves the purpose of illustrating the basic principles underlying the treatment of mental and nervous disorders generally. These embrace, to a greater or

less degree, the simple physiologic procedures of the rest-cure. As in simple neurasthenic states, exhaustion is one of the dominant factors of mental disorders. Rest—radical, absolute rest in bed—should, especially in the acute affections or in the beginning periods of the more prolonged disorders, be instituted whenever practicable. In addition, the patient should be full fed. According to circumstances, a generous mixed diet should be instituted, to which should be added milk and raw eggs in liberal quantities. Bathing, tepid or warm, between blankets, should be practised daily, and the absence of exercise should be compensated by daily massage. Free elimination should be encouraged by the ingestion of liquids and by maintaining a regular action of the bowels. In other words, the principles to be applied consist of rest, feeding, exercise without the expenditure of energy; *i. e.*, massage and the securing of free elimination. As we shall see, these principles require modification according to the nature of the affection which presents itself.

Of the manic-depressive group, melancholia is the only one that can be managed outside of an asylum, and this only when the melancholia is relatively mild in degree and under special circumstances. A case of typical acute mania obviously cannot be treated outside of an asylum. This is also true of the larger number of the milder cases of mania; *i. e.*, those termed hypomania. Hypomania often presents numerous practical difficulties; while the patient is expansive and exalted, his excitement may not be so great as to lead his friends to suspect that he is insane. He is, as a rule, boisterous and loud in his conduct, often extravagant and reckless. Often he drinks to excess, and is frequently guilty of erotic and immoral conduct; and yet, while these symptoms are present,

the degree of lucidity of mind may be so great as to lead the friends of the patient to scout the idea of insanity. Such patients are usually exceedingly difficult to treat, because they reject the proffered assistance of both physician and nurses. If the symptoms become more pronounced, and the friends of the patient are finally convinced that their relative is insane, and commitment is agreed upon, it not infrequently happens that the patient, after commitment, takes legal steps to secure his release. Quite often, too, misguided friends and others espouse his cause, and much personal annoyance and inconvenience may be caused the physician and the members of the family who were active in bringing about the commitment. Cases of hypomania, especially when occurring in women, sometimes present almost insurmountable difficulties, for at times they can neither be committed nor can they be successfully controlled outside of the asylum.

It is usually impossible to persuade a hypomanic patient to remain in bed. If, however, this can be accomplished much may be gained. Warm bed bathing, the warm pack, may be instituted, as well as massive feeding. Massive feeding of itself exercises a sedative influence and sometimes to a pronounced degree. As a rule, however, rest methods are impracticable over very extended periods, but during the time the patient is in bed she gets accustomed to the presence of her nurses and to some extent forms the habit of yielding to their domination; thus the subsequent care and control of the case is made less difficult.

As above stated, of the manic-depressive group of mental affections the milder forms of melancholia are the ones which are best adapted to extramural treatment. If the patient be delusional and hallucinatory the case is usually one for commitment, even if the amount of depression be not great. In the

lucid and mild forms of melancholia an attempt should always be made to treat the patient outside of the hospital, and for the special reason that such cases cannot legally be committed. No jury will hold a perfectly lucid patient; though the preservation of lucidity, as we have learned, is by no means an index of the degree or of the intensity of the melancholia.

Cases of melancholia are especially adapted to rest methods. Quite commonly rest in bed, full feeding, and gentle bed-bathing can be instituted without much difficulty. However, this is not usually the case with massage or other mechanical procedure. The patients are apt to be disturbed and made nervous by the handling and manipulation, but occasionally a tactful and gentle nurse succeeds in getting the patient accustomed to it.

There is one element in the treatment of melancholia that must make every conscientious physician feel uneasy about his patient—no matter how carefully he has surrounded him by attendants or members of his family—and that is the tendency to suicide, a tendency which is more or less present in every case. Even in the milder forms of lucid melancholia, as we have seen, the tendency unquestionably exists, and this is the explanation of the majority of suicides of which we read in the daily papers. Self-destruction is best guarded against in the asylum, though it cannot be absolutely guarded against even there. Outside of the asylum walls, where our lucid cases of melancholia must necessarily be treated, the greatest protection must be thrown about the patient. Two nurses must always be insisted upon, but it is important to see that the mistake is not made of dividing the nurses into night and day nurse, for under such an arrangement neither continuous nor adequate supervision can be maintained. It is imperative that the following routine be instituted: Nurse A begins the

day by first having her own breakfast; she then takes the breakfast tray to the patient's room, and nurse B, who has been with the patient during the night, goes off duty. Nurse A feeds the patient, and later gives the bed-bath and carries out such other treatment as may have been instituted. At noon nurse B has her dinner, and then takes the dinner tray to the patient's room; nurse A now goes off duty. At six or six thirty nurse A has her supper, then takes the supper tray to the patient and goes on duty for the night. The next morning she is relieved by nurse B. In this way the patient is completely "covered" for every minute of the twenty-four hours. The ordinary division of the nurses into day nurse and night nurse of necessity permits of a hiatus at meal times as well as upon other occasions. Finally, the plan above outlined is much better for the nurses; each secures a good sleep every other night and has abundant time to sleep the next morning after a night of duty. In long-continued cases the strain is thus much better borne.

As pointed out in the consideration of melancholia, the patient usually suffers from a loss of appetite which is sometimes very pronounced and not infrequently leads to a refusal of food. Sometimes it is possible to persuade the patient to eat; at other times he will swallow the food automatically if it be placed in his mouth. Not infrequently persuasion and the cup and spoon are all that is necessary. However, now and then we are obliged to resort to forcible feeding. This may be accomplished by a tube introduced into the stomach by the mouth, or, better, by a tube introduced through the nose. Feeding by the stomach-tube may encounter active resistance by the patient, who may firmly clinch his teeth; if the latter are forcibly separated there is danger that he may bite the tube or the fingers of the physician. A far readier and

much more satisfactory route is offered by way of the nose. At the first feeding, the physician should have the assistance of one or perhaps two nurses. The patient may be seated in a chair or lie upon his bed. The nurses should prevent any untoward movement of the head or any attempt on the part of the patient to seize the tube. The nostrils should first be cleaned with a little absorbent cotton, and then the nasal tube, slightly warmed and oiled, should be gently introduced in a direction parallel to the floor of the nose. If it be found that resistance is encountered, due possibly to a markedly deflected septum or other cause, the tube should be withdrawn and introduced into the other side. It should be gently pushed backward, and will be found to readily glide along the posterior wall of the pharynx into the esophagus and thence into the stomach. While passing the tube, it is wise to gently depress the chin, as by this expedient the tube is much less likely to enter the larynx. If the patient be permitted to throw the head backward, the tube may pass around the soft palate and enter the mouth, where it may curl upon itself or be protruded between the lips. As a rule, little or no difficulty is encountered in properly introducing the tube, and the fact that it is really in the stomach may be verified by gently percussing the stomach while the operator holds the free or funnel-shaped end of the tube near his ear. The position of the tube having been determined, the food, which is of course liquid in form, is then gently poured into the funnel. When the requisite amount has been introduced the tube is withdrawn. It is important while this is being done to compress the tube so that no liquid may escape from it as its opening passes the larynx. In melancholia, as well as in stuporous states, the larynx is sometimes much obtunded, so that fluid or even the tube itself may enter it without exciting a paroxysm of coughing or immediate evi-

dences of strangulation. In but a single case, a patient whom the writer saw in consultation, did a serious accident occur; milk had escaped into the larynx in apparently considerable amount; the patient subsequently died of gangrene of the lungs. As a rule, however, the procedure is attended by no danger, and is performed with ease and certainty; and its repetition is accompanied by a lessened and finally no resistance on the part of the patient.

The question arises, How long is it proper to wait before instituting forcible feeding? If the patient has for a long time been taking a grossly insufficient amount of food, if he has lost weight decidedly, it is not wise to wait until he refuses food absolutely, but to resort to forcible feeding before emaciation becomes serious or pronounced. If the patient has been taking some, though an insufficient amount of food, one can wait with safety two or three days. If he is well nourished and is still drinking water, it is safe to wait a week or even longer. A patient, under such circumstances, should of course be under close observation. It is perfectly possible for a patient in a state of good nutrition to go without food for a very long time, but it is unnecessary to run any risk, and it is good practice, on the average, to feed after waiting three days.

The amount of the feeding should be small at first, say a pint or less; later this may be increased to a pint and a half, to a quart, or even more. The feeding should take place twice daily. According to judgment, it should contain milk and raw eggs. At times a broth or soup may be substituted. From time to time, also, orange juice should be given. It need hardly be added that, if necessary, medicines may be administered with the feeding. The patient's nutrition, as a rule, improves rapidly, and the method may be kept up for a long time—for weeks, for months, and, in given cases, for years.

Sometimes before instituting artificial feeding it is a good plan to wash out the stomach. Occasionally vomiting follows the feeding, and in such case it is also wise to wash out the stomach and to wait a suitable interval; in the next feeding the amount of food should be small and relatively simple; *e. g.*, a little peptonized milk and lime-water, or perhaps albumin-water.

A very unsatisfactory procedure is that of nutritive enemata. These may consist of peptonized milk, peptonised minced beef, eggs, etc. The bowel should first be washed out and then quieted by an opium suppository; a half-hour later the enema may be given.

Occasionally, in cases in which both the stomach and the bowel cease to be retentive, a hypodermoclysis of common salt solution may be resorted to with advantage. Especially may a crisis occasionally be bridged over by this means when weakness and emaciation have become marked. The fluid is, as a rule, rapidly absorbed, the vessels become filled, and the heart's action stronger. The procedure may of course be repeated; say twice daily. Enteroclysis may also be employed and often with advantage, though it is naturally less efficacious than hypodermoclysis.

It is unusual for cases of melancholia of such a character as to permit of extramural care to present the serious difficulties met with more commonly in the graver asylum cases. However, they every now and then present themselves, and the physician should be prepared to meet them. Commonly simple rest methods and watchful care suffice. Quite frequently "partial" rest methods are entirely adequate. In such case the patient rises late, lies down in the middle of the day, and retires early at night. He has a daily sponge or brief immersion bath, massage, gentle exercise, and full feeding.

The treatment of cases of dementia *præcox* is likewise to be based upon general principles. In a large number of cases, it is a wise plan to submit the patient to a radical course of rest treatment and to make every possible effort to force up the nutrition to the highest possible level. The fact that so many cases die of tuberculosis, especially of abdominal tuberculosis, is a sufficiently strong indication of the wisdom of such a course. As a matter of fact, the body weight is sometimes increased surprisingly under these circumstances, as much, for example, as twenty pounds in a month. Later, when the evidences of gross impairment of nutrition have been in a measure successfully combated, recourse may be had to efforts at re-education and retraining; an appropriate occupation or various other psychotherapeutic procedures may be resorted to. To this subject we will presently recur.

Cases of hallucinatory paranoia of average course and severity, as a matter of course, require asylum commitment. However, now and then we meet with mild and comparatively harmless cases, and the question arises as to what had best be done. Usually the friends of the patient stoutly resist commitment; at times, too, the patient's lucidity is such that it is doubtful whether he can be held by the asylum authorities. Unfortunately, here the ordinary physiologic methods applicable to other cases of mental disease are of little use. The best plan is to secure some simple and congenial employment for the patient. If he is occupied and kept busy, he will eat better, sleep better, and pay less attention to his delusive ideas. The friends, however, should always be warned that paranoia, no matter how mild, rarely remains stationary, that it is usually a progressive affection, and that the time may come when the patient will be dangerous and violent. The patients that give rise to the greatest difficulty are cases of paranoia simplex—

the non-hallucinatory form. Here, as we have learned, the persecutory delusions may be clearly defined and unmistakable, and may be a source of serious annoyance and even danger to others; and yet, if committed, the patient may suppress his delusions, may employ counsel, and give friends, relatives, and physicians endless trouble. (See p. 165.)

In the neurasthenic-neuropathic insanities, the psychosthenias, we have a group of patients all of whom must be treated outside of the asylums; it is very rarely, if ever, that a commitment is justified. As has been shown, the patients suffer from an inherent neuropathy complicated by a nervous exhaustion more or less profound. It seems unnecessary to point out that here, more than in any other field, are rest methods indicated. The latter should, whenever the patient's circumstances permit it, be instituted in the most radical manner. The patient should be placed in bed; full feeding, gentle bathing, and massage should be carried out elaborately and systematically, but, above all, the patient should be submitted to an absolute isolation. The nurse should sleep on a cot in the patient's room, and no one should have access to the room save the nurse and the physician. The nurse, it is unnecessary to say, should be of the same sex as the patient. It is imperative that a male patient should have a male nurse.

It is usually necessary to give close attention to the carrying out of the details lest the purpose of the treatment be defeated by some apparently trifling neglect. The rest should be made as nearly absolute as possible. The patient is instructed to lie quietly, not to sit up, except for the special purpose of taking food, nor is the patient to leave the bed except for the purpose of emptying the bowels or the bladder. The patient should not only have physical rest, but, above all, mental rest, and all

sources of mental and emotional excitement must be rigidly avoided. It is for this reason that isolation must be insisted upon. This necessitates the exclusion of relatives and friends as well as the suspension of all correspondence.

The diet is that applicable to exhausted states generally. It is wise to begin with a moderate amount of food only. Sometimes it is wise to begin with milk alone, giving this in exceedingly moderate quantities—4 to 6 ounces at meal-times, between meals, and just before the hour for sleep. However, in most patients some solid food can be given in the beginning. As regards meats, the white meats should, as a rule, be preferred. The succulent vegetables—spinach, squash, stewed celery, and later peas, string-beans, and other vegetables—may be added until a full diet is reached. Eggs may, of course, also be given. Potatoes should for a long time be excluded, as should also wheat bread in any quantity. The neurasthenic, however, is pre-eminently in need of a mixed diet, one capable of furnishing all that the tissues require—proteins, fats, carbohydrates, vegetable acids, and salts; but this full diet should be approached gradually. The milk should be increased slowly until 8, 10, 12 or more ounces are taken six times daily. Not infrequently the patient objects to the milk. Sometimes this objection is based upon an actual idiosyncrasy, so that milk is digested with great difficulty. In such instances we may make a trial of various forms of modified milk. At times the difficulty is overcome by the addition of some alkaline water, still or effervescent, such as Vichy, Seltzer, or Apollinaris, or artificial plain soda-water. At times the addition of a little table-salt makes the milk palatable. Finally, the milk may be predigested, or, what is often a better plan, a small quantity of some digestive powder, such as pancreatin

and sodium bicarbonate, may be added to the cold milk just before the latter is taken. Buttermilk, if it can be obtained, is also of great advantage, especially if there is marked constipation. In other cases, whey can be employed with benefit; it does not, however, answer as a substitute for milk for any lengthy period. Kumyss or, rather, imitation kumyss is of much more value than whey, and is frequently well digested when milk, even modified, fails. Occasionally it is necessary to abandon milk altogether, and under such circumstances we may resort to egg feeding. Eggs are best given raw, and should be given in increasing number daily. The procedure is as follows: A raw egg is carefully opened and dropped into a cup in such a way that the yolk is not broken. The patient is then directed to swallow the egg whole and with a single effort. It is best to administer the egg without salt, lemon-juice, or other attempt at flavoring. At first it is wise to begin with one egg between meals, the number being increased to two, three, or four, and even more, as circumstances permit. Later, a raw egg is given after each meal—sometimes two—and thus the number of raw eggs is increased, so that in many instances quite a large number are taken. As a rule, the limit is reached at eight or ten eggs. There are patients, however, who take as many as a dozen, eighteen, or even more eggs in a day. Usually these large quantities are well borne. Exceptionally, however, if a patient has taken a large number of eggs, the skin acquires a yellowish tinge. The coloring of the skin sometimes alarms the patient, as it suggests an attack of jaundice. However, there is no discoloration of the conjunctives. The tinge, too, is of a brighter yellow than that seen in jaundice. The staining of the skin can be made to disappear by simply withdrawing the yolk and restricting the egg feeding to the whites.

of the eggs only. In a few days the coloring becomes distinctly less pronounced and finally fades altogether.

The quantity of food which it is possible to administer to neurasthenic patients at rest in bed is sometimes astonishingly large, and is attended by a rapid increase in weight. If proper precautions are taken, no digestive disturbances, gastric or intestinal, accompany this surcharge of the digestive tract. Great care should, of course, be taken under massive feeding to keep the bowels open, to see that the skin is kept active by bathing, and to see that the massage is given thoroughly. No undue distention of the stomach or of the abdomen results, and, when the amount is again reduced to normal, no untoward consequences are observed.

Finally, it is important to add that the massage had best be given by the nurse. The introduction of a strange masseuse into the room very frequently disturbs the patient. The masseuse, if she be not a very tactful person, may create havoc by the gossip and injudicious communications which she may bring into the room.

If the details of the treatment be properly carried out, various changes are noted, provided, of course, that the case progresses favorably. It is noted that the patient increases in weight, the muscles become firm, the extremities cease to be cold, and the patient begins to lose her pallor. The patient gradually passes into a condition of placidity and contentment. Nervousness and restlessness give way to quiet and an increasing sense of physical well-being. As the days and weeks pass by, the physician and his patient are becoming more and more closely acquainted. The nurse, too, has learned to know the little personal peculiarities of her patient, all of which she faithfully communicates to the physician. The conversations between the latter and the patient are at first gen-

eral in character, but, as time passes, both the physician and the patient realize that a complete understanding has not yet been established between them. Especially is this the case in the form of mental disorder we are at present considering. It is wise for the physician not to be in a hurry; frequently the patient will break down the barrier herself and say, "Doctor, I must some day have a longer talk with you," or she may communicate her desire to the nurse, who in turn informs the doctor. As a rule, the conversation proves to be a long one, the patient thoroughly relieves her mind of various matters, speaks to the doctor of her personal affairs, unloads her worries and cares, and at times speaks of some one matter, perhaps an intimate personal fact, that has been worrying and distressing her. In the experience of the writer it is infrequent for this fact to deal with the sexual life of the patient, though this is every now and then the case; and his experience has been the same with both male and female patients. Further, the memories of sexual experiences are not so hidden and obscure as to necessitate the elaborate and tedious methods followed by Freud and his followers. As a rule, too, a physician experiences in rest treatment no difficulty, by simple and direct methods, in determining the factors of real importance, sexual or other. The opportunities offered by the daily visits of the physician, the increasing confidence of the patient, and her tendency to seek the relief which a free discussion of her case affords, lead, as a rule, to the gradual disappearance of the special fears, the phobias, from which she suffers. During all of this time, be it remembered, the bodily condition is undergoing marked improvement, large amounts of food are being digested and assimilated, the heart's action is no longer rapid or disturbed, tachycardia no longer occurs, the hands and feet and the general body surface are

warm, sleep is normal in amount and refreshing, and the attitude of mind ceases to be introspective. Soon a sense of well-being becomes established, which little by little becomes more and more pronounced, until morbid ideas of all kinds are crowded from the field of consciousness. Buoyancy, expectancy, spontaneity, self-assertion, a desire, and finally a demand, for action mark the transformation. During all of this period the patient's mind offers a fertile field for psychotherapeutics. Suggestion by the physician as to the disappearance of the phobia now grafts itself upon the willing mind of the patient with tenacious force; chronic indecision and aboulia, under the powerful stimulus of the physical invigoration and the added stimulus of the physician's will, lessen and disappear. Time is required, it is true, but this extends as a rule over a number of months only; three or four, not, as in psychanalysis, over two and three years.

The degree of success achieved in a given case depends largely upon two factors: first, the degree of neuropathy present, and, second, the length of time during which the special symptoms present have persisted. Chronic indecision and aboulia, as a rule, disappear comparatively readily; in connection with these symptoms we must bear in mind the not infrequent presence of disturbances of the internal secretions, more especially of thyroid inadequacy, and the consequent benefit to be derived from the administration of thyroid extract. The phobias also eventually disappear, though in their case it is frequently necessary to maintain suggestion and retraining for some time after the bed-period of treatment has been concluded. The symptoms due to defective inhibition, the peculiar gestures, "defensive" movements, coprolalia, tics, and like phenomena are much less promising. However, if the affection has not been present long, if the patient is

still young, great success may attend our efforts. Even in long-standing cases much is now and then accomplished by rest, especially if this be followed by persistent exercise. The character of the exercise is very important; the latter should consist of slowly carried out movements of precision, which should gradually be made more complicated and difficult. Such movements require mental concentration and a sustained action of the will. Accompanied by encouragement and suggestion, this method not infrequently leads to a gratifying result. However, severe and long established tics, especially typical tic convulsif, prove to be resistant and inveterate, probably because of the more pronounced character of the neuropathy.

Compared with psychanalysis, the above procedure—the rest treatment of Weir Mitchell combined with psychotherapy—yields results incomparably greater, more durable, and in a much shorter period of time. No one questions the fact that the full recital by the patient to her physician of her symptoms and of all of the associated details is a source of relief. Every neurologist of experience will, I think, admit its truth. The relief which persons experience from a full account of their symptoms and the inevitable concomitant emotional discharge, is seen, in a more marked degree of course, and yet typically, in the making of confessions; at times the demand for relief under these circumstances is, as is well known, so great and so insistent that the sufferer voluntarily makes statements which he knows may lead to disgrace, imprisonment, and at times even to death.

Rest and the psychotherapeutic procedures above detailed are applicable of course also to hysteria, in which the results achieved by these means are alike successful and often brilliant

and remarkable. Freud speaks of achieving results in from six months to three years; by rest methods the time is frequently counted by weeks. Finally, it should be added that full rest methods are not always necessary, but that "partial rest" often suffices. Space will not permit of a consideration of partial rest in detail; it implies an increased amount of rest secured by retiring early, rising late and lying down during a part of the day, together with full feeding, gentle exercise, bathing, and perhaps massage. Suitable occupation in the intervals must not be forgotten.

That the psychotherapeutic methods above outlined should be applied, in so far as they are indicated, in every case submitted to rest treatment, it is not necessary to add. They are applicable in melancholia, in dementia *præcox*, as well as in other mental affections; that their usefulness in dementia *præcox* is much more limited is equally evident.

The general principles of the rest treatment are also especially applicable to the intoxications. (See p. 212.) If the patient be placed in bed and have adequate supervision by nurses, the alcohol, morphin or cocaine can be withdrawn at the will of the physician. An ideal plan of treating a drug-habit is to institute absolute isolation with two trained nurses, according to the method already described. (See p. 428.) By this means access to drugs and stimulants can be entirely prevented. At the same time, full rest treatment, with liberal feeding, bed-bathing, and massage can be thoroughly carried out.

Usually alcohol can be withdrawn at once; though, if the patient show the marked effects of a recent excess, it may be wiser, because of the possible danger of an attack of delirium, to make the withdrawal gradual. However, the moral effect of a too prolonged withdrawal is bad, and a withdrawal as rapid as is consistent with safety should be instituted.

In the case of morphin, it is much wiser to make the withdrawal gradual. It is my practice not to begin withdrawal of the drug until rest-treatment is fully under way. One must remember that the morphin habitué labors under an excessive fear lest the drug be withdrawn too soon. Besides, sudden withdrawal always implies a period of frightful physical and mental suffering. Further, the patient is, as a rule, intensely distrustful. I know of no class of patients with whom it is more difficult to establish friendly relations or in whom it is more difficult to inspire confidence. However, if the patient learns, after his first few days of rest and isolation, that he is still receiving his hypodermic injections, or that he is still being allowed his usual quantity of laudanum or opium, confidence sooner or later asserts itself, especially as the physical comfort resulting from the bathing, massage, and proper diet soon becomes pronounced. My practice is almost invariably that of very gradual withdrawal. The withdrawal should be so slow at first that the diminution of the dose is practically imperceptible; later on the reduction may be more rapid. If the patient has been in the habit of receiving hypodermic injections, it is my plan not only to reduce the dose gradually in the manner indicated, but also to begin adding to the injection small doses of strychnin sulphate, say $\frac{1}{50}$ of a grain, and if the skin be very moist, small doses of atropin sulphate, say $\frac{1}{100}$ of a grain. As the dose of the morphin is diminished, hyoscin or scopolamin should be added to the hypodermic injection, first in small and then in larger doses. As a rule, the atropin may be discontinued if the scopolamin be given. There can be no question that hyoscin and, more especially, scopolamin greatly relieve the suffering of the patient and keep him much quieter than he would otherwise be. There is, of course, no danger of the formation of a hyoscin or scopolamin

habit; and, besides, the physician is in complete control of the situation. The physician should be especially cautioned not to make use of cocaine during the withdrawal, or, in fact, at any time, inasmuch as the patient may sooner or later acquire the cocaine habit, with disastrous results. Further, a large number of patients that come under our care for the morphin habit have already acquired the cocaine habit. The same remarks apply also to alcohol.

My reason for withdrawing the morphin in the gradual manner above described is not only to diminish the sufferings of the patient, but also to prevent the onset of serious symptoms. Every now and then, if the drug be abruptly withdrawn, signs of collapse, diarrhea, sweating, cardiac weakness, and dyspnea, with excessive prostration, may set in. In other cases, again, mental symptoms resembling those of confusional insanity make their appearance, the patient becoming hallucinatory, delusional, and finally delirious. (See page 231.)

As regards cocaine, it is, as a rule, practicable to withdraw the drug at once. It is true that insomnia, palpitation, dyspnea, and collapse are liable to occur, but they can be much more readily controlled. As a rule, the writer practices immediate withdrawal; the experience of Norris is entirely the author's experience. The bromids are very efficacious in combating the symptoms. Many cocaineists sleep spontaneously after the mere withdrawal of the drug, but it is usually a good plan to give moderate doses of trional or sulphonal at night. In the early morning coffee may be given to lessen the depression. In cases in which morphinism and cocaineism co-exist, the cocaine may usually be withdrawn at once. The morphin should, however, be withdrawn in the gradual manner already described. In cases in which the alcohol habit is also present, it is expedient to withdraw the cocaine at once, the alcohol rapidly, and the

morphin slowly. The morphin distinctly overshadows the other drugs, and, as a rule, it had best be continued in full doses for a number of days. Later it may itself be gradually diminished. In other words, the treatment of the "triple habit" resolves itself, sooner or later, into that of simple morphinism.

That inebriates should be under supervision for a very long period is of course imperative, and that everything should be done by the way of occupation, moral influence, and psychotherapy need hardly be emphasized.

Elaborate rest methods are, of course, out of the question with the larger number because of the expense entailed. Unfortunately the law does not as yet make possible an adequate restraint of inebriates, so that, even when the patient has the necessary means, nothing can be accomplished by the most elaborate care unless he is entirely willing. Even when the patient is willing to commit himself to an institution, the commitment only holds for a very limited period; *e. g.*, thirty days, a time which is of course utterly inadequate. Usually it is only when the patient has passed fully beyond the legal boundary of sanity that he can be properly committed and restrained. It is unfortunate, to say the least, that we must frequently wait until crass insanity supervenes before effective treatment can be instituted.

Rest methods should also, other things equal, be carried out in connection with the treatment of paresis. Their thorough application plays a large part in the results achieved by salvarsan and other therapy. (See p. 309.)

Surgical procedures have, as may readily be inferred, only a small rôle in mental diseases. Aside from the rare cases in which there is gross disease, such as tumor, focal epilepsy, abscess and the like, surgery can play no rôle. In microcephaly

the operation of craniectomy has deservedly been abandoned. This is also the case with operations upon the pelvic organs; experience has shown that mental disease is uninfluenced by them. Pelvic operations in the insane should be based, as in other cases, upon surgical indications only. This is equally true of operations involving other portions of the organism. Again, experience militates against interfering with a pregnancy when during its course mental symptoms have made their appearance. As we have seen, the tendency is to the persistence of the mental symptoms after pregnancy has terminated normally, and this course is not changed when the pregnancy is terminated by miscarriage either induced or spontaneous.

Occasionally there is a remarkable cessation of progress, and at times a recovery, in mental cases in the course of which there is an attack of some acute febrile infection, such as typhoid fever or erysipelas. Less frequently similar results are observed after an abscess with febrile reaction. It would seem as though we had here to do with the formation of antibodies; such an interpretation is in keeping with the view of the toxic nature of the psychoses. Sometimes remissions and arrest of progress have been noted after severe trauma or severe surgical shock.

INTRAMURAL TREATMENT

The general principles of treatment applicable to extramural cases are of course the same for intramural cases. However, the problems presented are in the main very different. We must remember that cases suitable for extramural care are, on the whole, the most favorable, both as regards the possibilities of therapeutics and the likelihood of recovery. They are, at the same time, the least disturbed and the most

amenable to treatment; the treatment also is more individual. If, therefore, it be maintained that the results of extramural treatment are more favorable than those of the institutional, these important facts must be borne in mind. Finally, the physician, finding after a trial that the proper care of a patient is not practicable outside, always has the resource of commitment.

In the institutions are naturally found the great mass of disturbed cases, the chronic demented and hopeless forms, and also that great number whose means do not permit of extramural care, a care which is always expensive. We should remember that even isolation in a private room necessitates the employment of a special nurse; indeed, usually of two.

The modern hospital for the insane approximates more or less closely the ordinary hospital. Of necessity, provision is made for cases confined to bed either by reason of mental or physical incapacity, as in the dementias, stupors, catatonias, and the like. Bed-treatment as such—*i. e.*, bed-treatment based upon rest principles—is still to a large extent impracticable. It necessitates a corps of trained nurses, and demands an amount of individual attention which it is as yet impossible for most hospitals to give; at least, to large numbers of cases. However, it is being introduced to an increasing extent. General hospital care, of course, is found everywhere.

Among the recent hospital admissions, there are many patients who from privation, from the burden of life, from the struggle for existence, from the absence of physiological living or from worries and anxieties often too hard to bear, have broken down, and who in addition to their mental symptoms, present striking and important physical features as well. Other things equal, an ideal plan of handling a recent admission and especially if the patient be in a first attack, is to place the patient in bed

and, secondly, to examine him exhaustively from the standpoint of internal medicine, just as is done in the wards of a general hospital. Not only should this include a visceral examination, a study of the circulatory apparatus, and of the digestive tract, of the blood and secretions, of the possible infections, of the disorders of nutrition and metabolism, emaciation, obesity, and what not, but especially should we seek for evidences of disorders of the internal secretions. These, as is well known, are frequently present. Such evidences are rarely pronounced; indeed, they are commonly quite slight, but nevertheless present. Thus, hypothyroidism may express itself by a very moderate degree of infiltration of the skin and dryness of the surface; only exceptionally may we note anything approaching a typical myxedema, and yet the disorder of secretion present, though moderate in degree, may be of profound clinical significance. The same holds true of course for hyperthyroidism; the symptoms may not be—usually are not—sufficiently pronounced to present an exophthalmus or other striking feature, but, perhaps merely a tachycardia, ready sweating or ready exhaustion. Especially important is it to note the history of the patient in regard to the development of the sex glands. For instance, a delayed or imperfect puberty, the history of a late oncoming and irregular menstruation never properly established, is of great significance. The researches of Fauser and others point, as we have seen (p. 131), to the sex glands as playing an important rôle in endogenous mental deterioration, especially in dementia praecox. Here studies by Fauser and others have led to the conclusion that an abnormal hormone is thrown into the blood by the sex glands, that the presence of this hormone evokes the production of defensive ferments which in turn are injurious to the cortex and bring about the destruction, the lysis, of the latter. Again, abnormalities in the sexual development which

may, on the one hand, be retarded and incomplete or on the other precocious or excessive, may point in given instances to the pituitary gland and in other instances to the pineal gland. Finally, mixed clinical pictures are often presented, which justify the inference that a number of the glands of internal secretion are disturbed; perhaps the entire chain of glands is defective or aberrant in development.

In addition, recent cases frequently present the marked evidences of nervous exhaustion or of some other general impairment of nutrition. All things considered, it would seem wise to place recent cases in bed and to institute a more or less radical course of rest and full feeding.

I am aware, of course, that these measures are applicable only to a limited number of the insane, but the latter are unquestionably to be found among the cases of recent origin. Naturally, too, the rest is especially applicable and most readily carried out in the milder and less disturbed cases and are here productive of the most striking results. Again, many patients are kept in bed with difficulty, while others again take to their beds spontaneously, and such factors must of necessity influence the result. However, when applicable the indications for radical rest are very clear. Rest is an expedient of great power. By its means the expenditure of energy is reduced to a minimum, the consumption of tissue is greatly diminished and a lessened amount of waste material is thrown into the circulation. The strain upon the neuromuscular apparatus and upon the heart and blood-vessels is to a great extent removed, while the glands of internal secretion also have lessened demands made upon them. The last-mentioned fact assumes a marked importance when we recall how frequently in the insane these glands are deficient, inadequate, or aberrant.

When we turn to the question of full feeding, we find that

this is as imperative here as in simple and uncomplicated neurasthenic states. Full feeding means hypernutrition, and hypernutrition not only adds to the substance of the body but also profoundly influences metabolism. In excessive feeding, for instance, protein substances which have been only partially reduced, gain access not only to the portal circulation but even pass through the liver. Once in the blood, the latter assumes the function of completing the digestion. It would appear that all the cells of the body in addition to the special function imposed upon them by the special organs or tissues of which they are component parts, also retain the primitive function of digestion, and it would appear that in no tissue is this function better preserved than in the blood. Here the various leukocytes, the plasma, and even the erythrocytes and the blood-plaques play a rôle. Abderhalden found, in accordance with this truth, that ferments make their appearance in the blood when the intestinal tract is overfilled with protein, peptones, or carbohydrates. In massive egg feeding, for instance, unchanged protein enters the blood and can be demonstrated by the presence of ferments. In exhausted and enfeebled states it stimulates thus the formation of antibodies. In the toxic insanities, those resulting from poisons introduced from without and those resulting from the infections, the rôle of overfeeding is thus made clear; but this rôle is equally clear in the autotoxic states, for these are in a sense self-infected cases and the problem in no wise differs, for instance, from that offered by tuberculosis. Finally, not only is the ferment-producing power of the blood stimulated in hyperfeeding, but the lipoid substances also are largely increased in amount, and lipoids, as we know, play a most important rôle in the formation of antibodies.

The problem that confronts us in insanity is not only one of exhaustion but also of intoxication, and under these circum-

stances hypernutrition assumes, as we have seen, a special significance and importance. The intoxications to which the organism is subject may be roughly divided into two groups. Some poisons exercise but a short tenure; that is, the intoxications which result from them are of short duration. In such instances the organism successfully resists and disposes of the poisons speedily and promptly. Such poisons are successively submitted to the defensive action of the gastro-intestinal juices, the defensive action of the liver and other glands, are variously changed chemically, and finally destroyed or eliminated; but these are not the poisons nor the processes which usually concern us in insanity. The poisons with which we deal in mental diseases are mainly those of long tenure, those which are not destroyed by the various glands and other defensive structures, and which consequently influence the metabolism of the organism for long periods of time, usually many months. Not only is this true of the poisons present in mental diseases which are essentially neuropathic and hereditary, such as the manic-depressive group and the group of dementia praecox and paranoia, but also of those in which the poisoning is primarily of extraneous origin. Thus, when prolonged insanities ensue after acute infections, the poisons at work have their origin in a secondary disturbance of function of the liver, of the thyroid, of the kidney, of the adrenals, and of other glands and tissues. The fact of such involvement is based on indisputable clinical and pathological evidence. Consequently, a disorder of metabolism ensues which constitutes of itself an auto-intoxication, an auto-intoxication secondary to the original infection. However, whatever the character or the source of the intoxication, nature is forced to fight the battle by the gradual formation of antibodies, *i. e.*, by the continued effort at immunization.

In a patient who is resting and who, in addition, is receiving

large amounts of nourishment, we must compensate for the absence of exercise whenever practicable by massage. I shall not dwell upon the applicability of this procedure in the insane. Individual cases permit of the expedient in varying degrees; in others it is clearly inapplicable. In some, passive exercises or, better still, exercises with resistance can be instituted; all depends upon the character and peculiarities of each individual case. There is one important fact, however, in regard to massage that is not generally known, and it is one that emphasizes the great value of massage. Many years ago in making a blood count of a specimen of blood taken from a limb before massage and comparing this with the blood count of a specimen taken immediately after massage, Dr. John K. Mitchell noted a largely increased percentage of red blood-cells. This was, of course, a relative increase only. It is obvious that during massage, doubtless during the process of kneading, the liquid portions of the blood are forced into the tissues. The liquids of the blood are thus brought into actual contact with the cells and it is extremely probable that in this way local nutrition is especially stimulated. Ordinarily we think of massage only as benefiting the circulation, as increasing the flow of blood to the part rubbed, but evidently it accomplishes much more than this.

In addition to rest, hyperfeeding, and massage there remains another powerful expedient, namely, that of bathing. It is not my intention to dwell upon the familiar fact that bathing stimulates elimination. It does really more than this, however; in its way it also stimulates metabolism and at times is attended even by a slight increase in the intake of oxygen. It is important, however, to emphasize the fact that in patients undergoing rest treatment bathing should not be vigorous; indeed, in the average case it is best limited to gentle sponge-bathing in bed between blankets.

That rest and hyperfeeding, to achieve a maximum result, should be carried out for weeks and months goes, of course, without saying. How long they should be employed depends of course upon each individual case, upon the progress made, upon the gain in weight, and upon other factors. It may be safely said that when the level of the general health of the patient has been distinctly raised, or better, when the latter has apparently reached the highest level possible under rest measures, exercise, diversion, employment may gradually be instituted.

The most serious problem in asylums for the insane is always that presented by the disturbed cases. Here an expedient practised extensively in Germany for the last fifteen years, especially by Kraepelin, has proved to be wonderfully efficacious. This consists in the use of the prolonged warm immersion bath (Dauerbad). The patient is placed in a bath of a temperature of 95° F. and allowed to remain in the bath for one or two hours, several days, several weeks, or, it may be, for months. The procedure is especially adapted to active deliria; *e. g.*, delirium tremens, to acute mania, to the excited periods of dementia praecox, and to other acute disturbances.

The patient who has been noisy and struggling soon becomes quieted. The warm water has a calmative and relaxing influence, the freedom of restraint offered by the absence of clothing and the fact that the body half floats in the water, lessens the tendency to resistance. Resistance is to a large extent reflex and is stimulated by that which it encounters. The bath also greatly favors elimination. There is a rapid fall of blood-pressure, due to dilatation of the peripheral vessels; probably there is also a corresponding lessening of tension and fulness in the cerebral vessels. The pulse-rate, respiration, and bodily temperature reveal no changes of moment.

If the patient continues to struggle or to be restless in the

bath, Kraepelin does not force him to remain in it, but renews the attempt after an interval. Sooner or later, the patient gets used to the procedure and is placed in the bath without difficulty. A dose of sulphonal may be given some hours before or a hypodermic injection of hyoscin shortly before. The plan practised by Pfisterer of giving morphin, gr. $\frac{1}{2}$ or $\frac{1}{4}$, together with scopolamin, gr. $\frac{1}{16}$ or $\frac{1}{32}$, hypodermically before the bath, seems to be ideal, and can certainly do no harm, while it greatly diminishes the chances of injury in violent cases. Luminal sodium hypodermically would here also seem to be especially applicable.

The patient may go to sleep in the bath or upon being removed to his bed. As indicated above, he may be permitted to remain in the bath, according to circumstances, for an indefinite period. The desire for food is much increased, and, as a rule, the patient is fed very readily. The nourishment should, just as in a bed case, be given at regular intervals and if necessary night and day. The bowel movements and urine are discharged directly into the water and carried off by the discharging pipe; the advantages of this in filthy cases needs no comment. Bed-sores are prevented, or, if they have already occurred, are kept ideally clean. Finally, the occurrence of menstruation offers no obstacle to the treatment.

Cases of agitated melancholia are not adapted to this treatment, according to Kraepelin, and this, he thinks, is also true of some cases of disturbed catatonia. In the latter, he believes that the warm wet pack is sometimes more practicable. The patient should be allowed to remain in the pack until free sweating results, but not longer than two hours.

The installation of the permanent warm baths is, of course, expensive. They require, also, the presence of a number of well-trained attendants, but the advantages of the treatment are

exceedingly great. The fact that the patient becomes quiet and remains quiet without the use of drugs, that he eats, sleeps, and can be nursed without struggling is, to say the least, a very great gain. The prolonged immersion is well borne. The epithelium may become somewhat swollen and there may be here and there some irritation of the hair-follicles, but these are minor troubles and are readily treated.

Other methods of hydrotherapy do not call for detailed consideration. There is one procedure, however, which deserves especial mention and which I believe in given instances to be of great value. I refer to the employment of hypodermoclysis in certain stuporous cases, as is practised abroad, more especially by Pilcz, of Vienna. Hypodermoclysis is obviously inapplicable to the stupor of catatonia or the stupor of melancholia; it is, however, undoubtedly applicable to the stupor of infection and exhaustion. Here it unquestionably stimulates elimination. I have on a number of occasions had the opportunity of employing this method in such cases with very satisfactory effect. The procedure is unattended by risk and should, I believe, be more frequently practised than it is. It has been carried out by Pilcz for years with marked success. A more direct method is the free intravenous injection of normal salt solution, which is sometimes followed by striking results. In given instances, as in alcoholic delirium, the intravenous injection may be especially medicated. Here sodium bicarbonate and sodium bromid may be added to the salt solution, and in this way both the acidosis and the edema of the brain tissue may be counteracted. Hogan¹ followed such an injection immediately by a solution of glucose, the latter being given to combat the exhaustion. The proportions used by Hogan are 5.8 gm. sodium chlorid, 8.4 gm. sodium

¹ See Journal of American Medical Association, December 16th, 1916, p. 1826.

bicarbonate, and 10.2 gm. sodium bromid in 1000 c.c. of water. The various substances had best be dissolved separately in freshly distilled water and boiled. The solution of glucose is in the proportion of 80 gm. of glucose to 240 c.c. of water and, of course, requires equal care in its preparation. Hogan noted rapid subsidence of the delirium, while recovery ensued in between two and three days in all but 9.3 per cent. of his cases.

The continued warm bath is also a form of restraint; indeed, it is the best, the most humane, and most physiologic form of restraint yet devised. A similar function is served by the warm pack. Here the warmth and the free sweating induced are likewise factors conduced to the relaxation and the calming of the patient, but, in addition, the pack is also a method of restraint. Other forms of restraint are, in the modern asylum, only infrequently resorted to. However, in exceptional instances, physical restraint is imperative. Thus, a patient may be constantly endeavoring to injure himself, *e. g.*, to thrust his nails into his eyes, to strike his head against the wall—or he may be engaged in a constant and exhausting struggle with his surroundings and attendants. Again, it may be that he has suffered a serious surgical injury, such as a fracture of a leg, or perhaps it has been necessary to submit him to some surgical operation, the successful after-care of which demands quiet. Usually a sheet or sheets properly applied answer every purpose. A sheet loosely rolled may be passed back of the patient's neck and under both armpits; the ends are then knotted under the cot or securely fastened to the sides of the bed. In a similar manner the legs may be fastened by a rolled sheet which encircles separately each ankle and is then fastened to either side of the bed. An excellent restraining sheet which allows considerable freedom of movement and yet prevents injury to the patient can be secured at most instrument makers. If the emergency

makes it necessary that a greatly disturbed patient, *e. g.*, in acute mania, be restrained entirely, so as to make possible his transfer to an asylum without injury, he can be completely rolled in a sheet, the arms being flexed over his chest, the legs extended, and the sheet then firmly secured by means of safety-pins. Such measures are, however, only infrequently required. Much prejudice exists against the camisole—a canvas shirt with long, closed sleeves and laced up the back—and it can, as a rule, be dispensed with. The same is true of anklets and wristlets. However, if properly made and properly applied, there can be no objection to their use under certain circumstances and in given instances. It is needless to say that they should be removed as soon as practicable. It is important to point out that a patient under physical restraint should be carefully watched, for it is quite possible that he may injure himself in spite of the restraint. Finally, in cases in which an emergency necessitates restraint, we should not rely upon this measure alone to control the patient. Sedatives or hypnotics should be given at the same time. (See p. 421.)

In the management of the mass of patients in an asylum, general principles, of course, are to be followed; these include a liberal diet, attention to the digestive tract, the correction of constipation, the judicious use, when necessary, of sedatives to allay agitation and the institution of measures, such as open air exercise and occupation to combat sleeplessness; drugs should be used only at times and to tide over special periods. Disturbed cases should, of course, be separated from the quiet ones, lest the latter also become excited. The feeble and infirm and those that are sick naturally require special attention and provision. Special precautions, also, must be taken in suicidal cases.

As far as practicable, the convalescent, quiet, and chronic cases should be encouraged to read, to play games. Light tasks should be imposed upon some; an occupation, gardening, field work, upon others. Often patients who are mischievous, destructive, or given to masturbation, are greatly benefited by such means. Men should, when possible, be interested in work to which they are accustomed; women in sewing, laundry work, cooking. Diversion and amusements may also be arranged, but they should be entered upon with caution. The entertainments provided should not be exciting; it is doubtful whether balls and kindred functions have a place in the asylum.

By means of occupation, improved cases of dementia *præcox* may be more or less retrained, and cases of paranoia become interested in something other than their delusions, while the criminal insane often become orderly and well behaved.

The classification and employment of patients depend of course largely upon the size, location, and facilities possible in a given hospital. Of recent years the tendency has been toward the grouping of patients in special hospitals. Thus, in addition to the general hospitals for the insane, there have been established hospitals for the chronic insane, in which the patients work in shops, farms, and gardens; also hospitals for the criminal insane, in which the patients are similarly occupied; and, it is to be hoped, that ere long we will have adequate hospitals for inebriates, in which the patients cannot only be usefully employed, but also detained. Feeble-minded children and epileptics are, to some extent, already segregated in special institutions, and the future promises that the high-grade defective and criminal classes will also soon be made the subjects of a similar provision.

A method of caring for the insane in families has long been in existence at Gheel in Belgium. For certain classes of cases

this plan has much to recommend it. Perhaps a useful adaptation of it would be to have suitable cases as they improve in the hospital transferred to families in the neighborhood, so that the hospital could still keep in touch with them. If these families could be the families of attendants regularly employed in the hospital itself, very satisfactory arrangements could probably be made. Such a plan would meet largely the important problem of the "after-care" of the insane, as well as the difficult matter of judging just when a convalescent patient had best leave the institution. If he leaves too soon, he may relapse; if he remains too long, he may become discouraged or indifferent. When practicable, dismissed cases should be traced to their own homes, or the friends should be informed of the importance of having the patient report to the hospital or clinic at intervals.

More important than all of the above measures is the foundation of psychiatric hospitals in cities in which the acutely insane will be received and treated according to the most scientific methods, and from which the cases proving to be chronic or incurable may be distributed to the appropriate asylums.

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